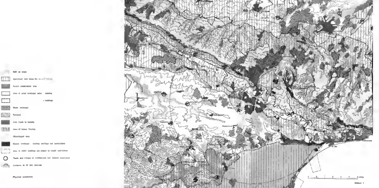
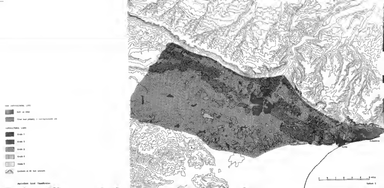
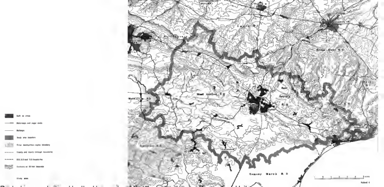
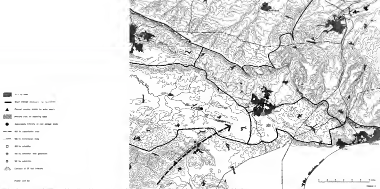
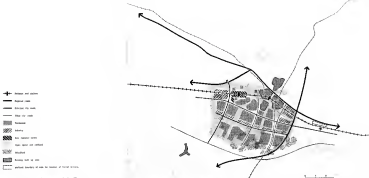
Built up areas
Nature conservation area
+ buildings
Parkland
Area liable to flooding
Area in which buildings are subject to height restrictions
Towns and villages of architectural and historic importance
Contours at 50 feet intervals
Physical constraints

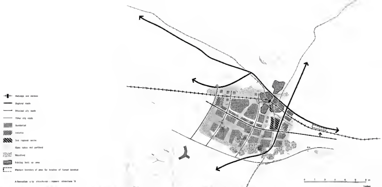

NON AGRICULTURAL LAND
Built up areas
Other land primarily in non-agricultural use
AGRICULTURAL LAND
Grade 1
Grade 2
Grade 3
Grade 4
Grade 5
Contours at 50 feet intervals
Agriculture Land Classification
miles


Built up areas
Motorways and major roads
Railways
Study area boundary
Contours at 50 feet intervals
Study area
West Ashford R.D
East Ashford R.D
Bridge - Blean R.D
Romney Marsh R.D
Tenterden
Hollingbourne

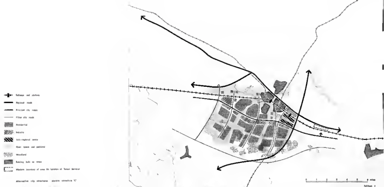

Major drainage
Possible pumping station for water supply
sites for balancing lakes
Approximate location of main sewage works
400 kv transmission lines
132 kv transmission lines
400 kv substation
132 kv substation with generation
132 kv substation
Contours at 50 foot intervals



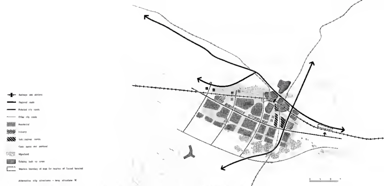
Alternative city structures – square structure 'A'

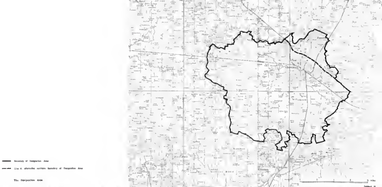


Alternative city structures – square structure 'B'



Alternative city structures: spine structure 'C'


Railways and stations
Regional roads
Principal city roads
Other city roads
Residential
Industry
Sub-regional centre
Open space and parkland
Woodland
Existing built up areas
Western boundary of land for location of Tunnel Terminal
Alternative city structures – loop structure X
0 1 2


Boundary of Designation Area
Line A alternative northern boundary of Designation Area
The Designation Area
0 1 2 3 miles
Exhibit 18

Chapter 1: Introduction to the Designation Study

ASHFORD AND ITS SURROUNDINGS

1. Ashford holds a key position in the geography of South East Kent. It stands on the northern edge of the Weald near the head of the Stour "gap"—the narrow valley cut by the River Stour through the North Downs. This gap has long been used as an important route linking Canterbury with the towns of the Weald and the South Coast. At Ashford the route crosses one of the principal roads from the Channel ports to London.

2. Ashford's traditional function as a market town sprang naturally from its position; and its historic core has many of the usual features of a small country market town. A fine parish church dominates the centre and there ere some attractive old buildings in the wide central shopping street. But the old, narrow streets leading into the centre are badly congested with traffic.

Expansion in recent years

3. The town expanded on a modest scale in the last century when the railway was built and a workshop established there. Since then expansion has been slow; in common with much of East Kent, Ashford has only very recently been affected by the rapid growth of London. The sixty mile journey was a deterrent to commuters and business interests alike until improvements in the rail service reduced the journey time to an hour. Latterly the Urban District Council, acting under the Town Development Act in agreement with the Greater London Council, has been building dwellings for people moving out from London. Industrial firms have moved to the town—it is one with the highest proportion of industry in south east Kent—and there are plans to improve part of the shopping centre to serve more adequately the increasing population in and near the town. By 1966, Ashford's population had grown to 32,000 and it is expected to increase to something over 50,000 by 1981 if policies now in force are continued with.

4. The setting of the town is still rural, however. Ten miles and more of open countryside separate it from its nearest eastern neighbours on the Channel coast. To the north, the Downs form a barrier fifteen miles deep of beautiful and sparsely populated country between Ashford and the towns on the north Kent coast. Maidstone, the county town, lies twenty miles to the north-west and is separated from Ashford by a belt of orchard country, typical of so much of Kent. To the south the well wooded country of the Weald rises to the Central Wealden hills and contrasts sharply with the low lying flat and open cheracter of Romney Marsh.

Expansion near Ashford

5. Ashford has for many years been thought of as a possible site for expansion to take London overspill. In 1964 the idea was taken up in the Ministry of Housing and Local Government's regional study of South East England* which examined "the growth and movement of population in the South East, including overspill from London, and related employment and transport questions" (Chapter 2, para 1) with a view to proposing ways in which the expected increase of population in the South East could be accommodated.

6. The Study concluded "There should be a second generation of new and expanded towns conceived on a larger scale than those now being built. The need is for big schemes in locations favourable for growth. They should accommodate London overspill, and should attract some of the migrant population and employment that might otherwise be drawn into the London orbit." (Chapter 18, (iv)). "What is wanted" it was said "is a balanced programme (of construction) with a few really big schemes and a number of large to medium sized expansions also." (Chapter 11, para 14).

7. "The proposed Channel Tunnel makes development in the Ashford area, where the main railhead is likely to be, an attractive possibility. This development... might take the form of a new town." (Chapter 13, para 22).

THE DESIGNATION STUDY

Terms of Reference

8. This report is the result of our commission to carry out a study with a view to recommending a designation area for a possible major new development in the Ashford area. Our terms of refarence are quoted in full in Appendix 1.

9. It should be made clear at this point that the essence of the task is to define the boundary line of an area which would be "designated" under the procedure of the New Towns Act as appropriate for the development of a new town. But obviously it is not possible to consider an area for designation without studying the possible content and structure of the new town. As will be seen later in the report, we have made such a study of structure, but we stress that this was done in order to substantiate the Designation Area and should not be interpreted as a Master Plan. Should the Minister decide to proceed with designation, further study would be needed to draw up a detailed Master Plan.

The project

10. The project under consideration is concerned with development in the Ashford area to accommodate 150,000 people, their natural increase and the natural increase of the local population during the next 25 years, that is, by 1991. The purpose will be to provide both dwellings and employment for Londoners as soon as possible, and to that end a fast growth rate—up to 75,000 people by 1981 (including the natural increase of the immigrants)—is the aim. We were

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*The South East Study, Ministry of Housing and Local Government. HMSO 1964

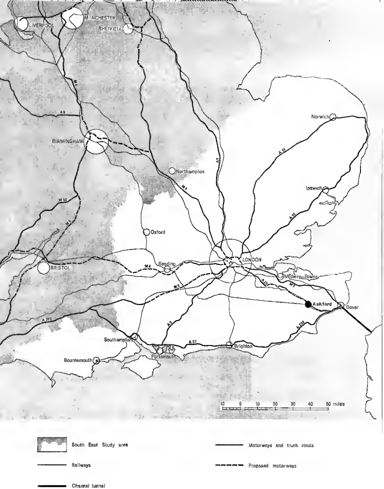

Figure 1. The South East Study area

instructed, however, that we might recommend a slower rate of intake if there were strong arguments in favour of it.

11. We were instructed that our search for a suitable site should not extend beyond a radius of approximately ten miles of Ashford. We were to take account of the need to preserve high quality agricultural land and we were to consider alternative schemes and assess them in terms of comparative costs and benefits.

The Channel Tunnel

12. The Terms of Reference stated that we should assume the Channel Tunnel to be in operation by 1975. At the time of writing this report (April, 1967) the site and size of the United Kingdom terminal of the Tunnel have yet to be decided. The Government Departments concerned advise us that the terminal site is likely to be adjacent to the main railway line or A20, somewhere between Ashford and Folkestone but no further west than the vicinity of Sellindge.

13. Our consultations with Government Departments and British Rail suggest that whichever site is chosen, the terminal will contain a road vehicle ferry-terminal, a rail passenger station and freight facilities, including a container depot, with associated road access, parking and customs facilities, all designed for rapid handling of peak traffic. As we understand it, accompanied goods vehicles and cars will go through the Tunnel on special shuttle-service trains carrying up to 300 vehicles each. The ferry capacity in each direction would be of the order of 3,000 road vehicles per hour. For accompanied cars, the ferry trains will be supplemented by "motorail" services between London and other inland centres in this country and various Continental destinations.

14. For ordinary passengers there will be through trains to the Continent from London and other centres, including the Tunnel terminal itself. Most freight trains will be made up at inland centres for through transit; any marshalling or transfer facilities at the Tunnel terminal would be for local purposes. The County Planning Officer's views on the implications of large volumes of road traffic passing through Kent to the terminal are mentioned in Chapter 2.

15. Employment generated by the Tunnel is another consideration which has a bearing on the location and growth of the new town. Passenger facilities such as garages, restaurants, and motels may be located at the terminal itself or on the approaches, and may only later grow up in nearby towns—Folkestone, Ashford or the new town. It seems that workers for these facilities are as likely to be drawn from other places in East Kent as from Ashford although much may depend on the actual location. In any event, it is likely that the number of people actually employed in *operating* the terminal would be fairly modest.

16. The strength of the attraction of the new link with Europe to manufacturing and distributing firms and offices is almost impossible to assess at the moment. Much will depend on the distribution of freight depots, the structure of freight charges, and whether or not the United Kingdom joins the European Economic Community, to mention only a few imponderables. The Government's present aim is to spread the benefits of the new link with the Continent throughout the country—as much to the northern development areas as to southern England. Under present policies it is highly unlikely that even industrial firms with a direct

interest in using the Tunnel would be encouraged or permitted to set up near the terminal unless they were closely associated with the achievement of some other Government policy such as the establishment of a new town. Although it seems reasonable to assume that if manufacturing and distribution firms and offices were attracted to sites near the terminal they would be willing to establish themselves in the new town itself, it is impossible to estimate the number of workers who might be involved in this way. In Chapter 6 we discuss some of the implications of the Tunnel for employment in the area.

17. With so much uncertainty about the Tunnel it is extremely difficult to interpret the role it might play in relation to the new town. Its catchment area on this side of the Channel is the whole country, and it is quite conceivable that it will operate almost independently of local surroundings. On the other hand it could prove a strong attraction to manufacturing industry with European links, or to distribution agencies. We concluded that on balance our principal aim should be to achieve the greatest possible degree of accessibility to the terminal from the new town without hampering access from other places in any way, and at the same time to leave the greatest possible freedom for growth both at the terminal and in the new town. It would be a sad mistake if decisions taken in the particular economic climate of today, and without a full assessment of the potential growth at the terminal or the new town, were allowed to inhibit the function of either in the future. The physical relationship between the town and the Tunnel is considered further in Chapter 4.

THE SCOPE OF THE STUDY

18. Any consultant embarking on a Designation Study is faced with the problem of deciding the degree of detail in which he must work in order to be sure, beyond reasonable doubt, that his choice of site is satisfactory. On the one hand he has to propose, in detail, an area of land for designation, knowing that such a designation will have well-defined legal and administrative implications for those involved. On the other hand he has to be reasonably sure that there is sufficient flexibility within the area to allow a successful Master Plan to be evolved at a later stage.

Three steps in the study

19. Our study consisted of three main steps. The first was to determine how much land could be made available for development after all the constraints imposed by the physical nature of the area, and its present use, had been taken into account, and to consider the land available in relation to both the broad requirements of the town itself and to the sub-regional strategy of development.

20. The second step was to determine how many people might be living in the town at some deliberately chosen point in its growth (in this case 1991 when planned intake ceases); to discover whether all the essential public utility services (water, power, etc) could be made available; and then to determine the amount of land needed for the various uses.

21. The third step was to match the land needed with the land available. This involved studying the possible structure of the town since it was necessary to

see how the various major land uses could be located in relation to each other, and to the town and regional transport networks. When this had been done the actual land areas required could be more precisely estimated. The description of these processes, later in this report, will illustrate the reasoning behind the choice of Designation Area. Although, as mentioned previously, the work does not constitute a Master Plan, nevertheless it does provide a basis for such a plan, and makes it possible to assess the likely impact of the new development on adjoining areas.

The layout of the report

22. In the following chapter we describe the sub-regional setting of Ashford. Chapter 3 then sets out the first and second steps of our study, examining them in relation to various aspects of the problem—the physical background, population forecasts, etc. Chapter 4 sets out the third step. The succeeding chapters elaborate on the impact of development on adjoining areas, and the implications of the very fast growth rate suggested in the Terms of Reference.

Chapter 2: The Sub-Regional Setting: East Kent

THE COUNTY PLANNING OFFICER'S REPORT

23. The background material on the sub-region to which Ashford belongs is contained in the County Planning Officer's report "Expansion at Ashford, An Appraisal of its Impact on East Kent".* His report, in effect, was part of our Terms of Reference (see Appendix 1, para 10). In this chapter we summarise the main points, as we saw them, concerning the setting and function of the new town in relation to the sub-region. Figure 2 shows the County of Kent divided into two sub-regions—the Outer Metropolitan Region and East Kent; the boundary between them follows county district boundaries roughly along the River Medway. Technical information on the sub-region, much of which we have supplemented by talks with Government Departments in relation to the immediate area round Ashford, is incorporated in the following chapter (relating, for example, to economic geology and hydrology).

24. The County Planning Officer's report starts from the contention that "it would be a mistake to adopt a narrow viewpoint of the proposal to create a major new town in the Ashford area. The intention should be not merely to create a large urban community with facilities sufficient for its own needs but to build a regional city capable of acting as the centre for East Kent for many purposes". The report goes on to examine various aspects of the economy—future population and employment distribution patterns, policies for town centres in the County, communications and the physical setting—in order to show how the growth of a city near Ashford might affect other places in the County.

THE ECONOMY OF EAST KENT

Population

25. The total civilian population of East Kent in 1965 was estimated at 575,800. The population has been increasing rapidly in recent years. More people have moved into the area than have moved away and, as the newcomers are often young people with families, natural increase in the population—the excess of births over deaths—has been higher. The population is mostly concentrated in and near the towns of the north Kent coast and Canterbury, and change has been most marked in those parts. The south east part of the sub-region has experienced the least change; indeed, in some places the population would have declined slightly had it not been for some immigration.

26. In the Review of the South East Study† the Minister of Housing and Local

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*Published by Kent County Council, 1967

†Ministry of Housing and Local Government Circular 5/66, "Review of the South East Study".

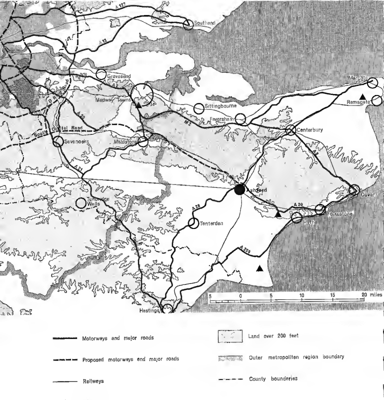

Figure 2. Kent sub-region

Government estimated that a population increase of 93,000 people between 1964 and 1981 should be provided for in East Kent (the part of the County beyond the Outer Metropolitan Region), excluding increase due to planned expansion near Ashford. In the event the increase may be higher because a survey undertaken in 1966 has revealed that there will be sufficient land available in East Kent to house 157,000 more people during the same period. This again discounts the possibility of planned expansion near Ashford or in Sheppey (where it is the County Council's intention to encourage the growth of employment and population).

27. Without planned expansion at Ashford it is unlikely that the overall *pattern* of population distribution in East Kent would show much change as numbers grew. The area round Ashford would probably remain thinly populated relative to other parts of the sub-region and might experience less rapid change.

28. The growth of a large new community near Ashford would radically alter the pattern, however. In addition to the effects on the immediate surroundings, a successful new town would probably divert immigrants from the northern part of the sub-region, and the emphasis on the north coast towns and Canterbury would then be reduced. It is possible, however, that as the new development near Ashford became established, population increase throughout East Kent would be encouraged and would reach a total nearer 157,000 than 93,000. With so much immigration as this, and with planned expansion near Ashford, the proportion of younger age groups in the population of East Kent would certainly rise.

Employment and industry

29. The wave of industrial and residential expansion that rolls outwards from London as land reserves in the centre are used up and restrictions there more stringently applied, seems to have reached the Medway towns and Maidstone, judging by the recent rapid rate of growth there. The County Planning Officer expects increasing demand for land for development in East Kent.

30. It is a cardinal point in County Council policy that a rise in the numbers commuting to London should be discouraged as far as possible—trains are often overloaded and British Rail has said that additional peak hour capacity cannot be provided in the short term. The County Planning Officer considers that it will be extremely difficult to halt the growing rate of commuting as residential land is taken up unless additional employment opportunities in London are severely restricted and suitable alternatives created in Kent: it will be important to relate any increase in the working population in East Kent to a corresponding increase in opportunities for *local* employment.

31. New industrial development in East Kent would be welcomed by the County Council to the extent that the local population structure shows a need for it and the location is suitable. The County Council is concerned to channel to East Kent any manufacturing industries which seek to move out from the inner parts of Kent near London in order to increase local employment opportunities. A certain amount of expansion of industry already located in East Kent is expected —it contains a proportion somewhat above the national average of those industries which, on a national basis, are considered to have the highest potential for growth in employment. Between 1959 and 1965 the most rapid growth in

employment in East Kent occurred in the manufacturing sector of industry in the Thanet towns, Sandwich and Richborough.

32. County Council policy encourages the growth of a major office centre at Ashford (whether or not a new town is built nearby) though its development may be long term, that is to say when restrictions on office development in London and the Outer Metropolitan Region become more effective.

33. The County Planning Officer expects that the new town near Ashford would become the dominant employment centre in East Kent by about 1981. It would be important to dovetail any major expansion near Ashford into the overall employment and population structure in East Kent so as to achieve a reasonable balance between job demand and job opportunity for the benefit of employers and employees alike.

34. Unless most of the additional employment associated with the new town were located in its immediate vicinity it is likely that a considerable movement of workers over fairly long distances would become necessary. A new commuting situation within East Kent would develop. The new town, as a major employment centre, could also alter the existing pattern of London commuting not only in East Kent but over much of the County.

Town centres

35. The main shopping centres which serve East Kent are Canterbury, Maidstone, Chatham, Tunbridge Wells and Hastings, whilst Folkestone, Margate, Ramsgate and Ashford are more local centres. London is important where more specialised purchases are concerned. It is County Council policy to steer the very limited funds likely to be available for investment in urban roadworks and redevelopment schemes in town centres to those towns which serve as sub-regional centres and where problems of redevelopment are greatest. Maidstone, the Medway Towns and Ashford are regarded as of first priority within this policy which does not, of course, relate to the County Boroughs of Canterbury and Hastings. In view of the mature character of Canterbury and the established attraction of its shops, the powerful influence of the City is likely to continue for some time to come; certainly during the early stages of the new town's growth and quite possibly beyond.

36. The new town under consideration near Ashford would probably include a new major shopping centre which would have the many advantages, in terms of convenience and efficiency, of a purpose-built centre. However, there is no reason to suppose that other centres in East Kent would decline in absolute terms in the face of competition from the new centre since the general rise in spending power which can be expected in the sub-region is likely to lead to a general increase in trade.

37. The size and rate of population increase would be the most important factors in determining when the new town centre might become established as a sub-regional centre. It might not achieve this status for 20 years or more.

38. During the early stages of the new town's growth there would undoubtedly be increased demands placed upon the existing main centres in East Kent and it would need care to ensure that this pressure did not cause these centres to overdevelop to their own ultimate detriment. The present shopping centre at Ashford could have an important role; there is a pressing need for improvement

so that it can cater adequately for the present population and for the further increase expected under the Town Expansion scheme.

Educational facilities

39. The report points out that primary and secondary education in the new town would be provided by the County Council. There would be no question of drawing away funds or teachers from other parts of Kent. Further Education facilities, however, are provided on the basis of e wider catchment area, and would be more directly affected by expansion near Ashford. The report details the various facilities available to people living in East Kent and goes on to make four points. The first is that expansion near Ashford would afford the opportunity to develop the South Kent College of Technology which at present functions in Ashford, Folkestone and Dover. New building could go forward on the large site already available at Ashford, and, later, new building could be considered at the other two centres. The second point is that the increased demands put on the Art College serving the area, which is housed in inadequate buildings at Folkestone, might afford the opportunity to rebuild it closer to the new town. The third point is that the new population would add to the demand for technical training facilities of polytechnic status; this could influence the future of the Mid Kent College of Technology which the County Council hope to see upgraded. Lastly, the report points out the importance of technical training facilities in attracting industry to a developing area: delays in meeting new demands could discourage industry from moving in.

40. The University of Kent at Canterbury and the three Colleges of Education in East Kent are not, of course, aligned specifically to local needs. Links between University research departments and personnel and industry in the sub-region are likely to be of greater significance in future, however.

Communications—road

41. Kent is served by two major roads linking London and the Channel Ports. A2/M2 follows a route between the north coast and the North Downs via Canterbury to Dover, while A20 leads to Dover via Maidstone, Ashford end Folkestone. A20, which is the shortest route from London to the Channel Ports and is likely to serve the Channel Tunnel terminal, is already severely overloaded along much of its length, especially the sections nearest to London. These two important routes, both of which are national trunk roads, are supported by a network of major and minor roads which is also generally overloaded.

42. Kent County Council's present policy is eimed at strengthening the existing network of inter-urban routes, rather than at providing a new framework to which urban areas could be linked. Plans have been drawn up for improvements to the existing network in the County which would accommodate the increases in traffic expected between now and 1986. However, these improvements would cost about £250 million whereas it is thought that there is unlikely to be more than £100 million available.

43. The plans for the County include, among other proposals, the improvement of A20* to dual three-lane motorway standard—with the exception of the Maid-

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*The Ministry of Transport has recently announced that the improvement of the unimproved lengths of A20 is to be included in the national pool of improvement projects ready for construction as soon as funds become available.

stone and Ashford by-passes which have already been constructed two lanes wide. It is expected that by 1985, the Maidstone by-pass will be seriously overloaded, while the Ashford by-pass will be used to capacity.

44. These foreseeable limitations to the capacity of even an improved A20 indicate that a third motorway might have to be considered to relieve A20 and M2. The County Planning Officer's report suggests that it would be better if any third motorwey were not orientated upon London.

Communications—rail

45. Two of the principal rail routes from London to Kent meet at Ashford:

i. Charing Cross—Tonbridge—Ashford—Dover.

ii. Victoria—Maidstone—Ashford.

The fastest route from Ashford to London is via Tonbridge to Charing Cross and most passenger traffic goes by this route. However, passenger trains from Tonbridge to London are heavily loaded at peak hours and it seems that major increases in the capacity on the approeches to London cennot be obtained without substantial engineering improvements. Thus it is the County Council's policy to try to prevent increases in the numbers of people commuting to London until improvements in rail services can be effected.

46. The line from Ashford to Tonbridge forms part of an important east-west route for goods traffic to the Midlands via Reading and Guildford and has been selected by British Rail for development. Ashford is also served by two branch lines:

i. Ashford—Canterbury—Ramsgate.

ii. Ashford—Appledore—Hastings/Romney.

Communications—air

47. There ere two airports within 15 miles of Ashford, at Lydd and Lympne. At present both mainly handle cross-Channel traffic, but a major population expansion near Ashford suggests the possibility that the town might eventually support its own airport for the purpose of communication with the rest of Britain. Lydd is physically more suitable for expansion than Lympne and, although it is rather further from Ashford, appears to be the better site for a larger airport.

Channel Tunnel

48. Two points in relation to the impact of the Channel Tunnel are made in the County Planning Officer's report. One is that the additional volumes of road traffic are not likely to be of critical size in themselves, but when considered in conjunction with present and anticipated traffic densities on Kent's major roads, it is evident that there is a minimum programme of road construction (in the County) that must be completed before the Tunnel is opened. He elaborates on this programme which includes the improvement of A20 and A2 to "standards appropriate to modern arterial routes".

49. The second observation is on the economic development which might be associated with the terminal. The terminal should be located where there is ample room to accommodate the distributive, storage and manufacturing industry, and offices which may need to locate close to it. The growth of employment there, though the size and nature of it cannot yet be estimated, could be important to the new town if it proved substantial.

EXPANSION AND THE COUNTRYSIDE

Agriculture

50. The County Planning Officer observes that in the vicinity of Ashford it is only towards the south and south-west that there is "a wide area of average or lower than average quality land where substantial urban development could occur without serious agricultural objection." This observation is based on a report made to the County Council by Professor G P Wibberley in 1963* in which he assessed the value of an earlier Land Classification Survey carried out by the Ministry of Agriculture† in indicating the areas of agricultural land which should be conserved against urban development. (Note: The land within a ten mile radius of Ashford which is above average quality according to this survey is shown on Foldout 1. As regards the land near Ashford and to the south and south-west—an area within the ten mile limit lying between the Downs escarpment and the northern edge of the Central Weald Hills and Romney Marsh—a new survey based on the physical quality of the land has very recently been completed by the Ministry of Agriculture. The results are illustrated on Foldout 2 and discussed in Chapter 3.)

Landscape

51. The visual beauty of Kent is one of its outstanding attractions and County Council policies are designed to conserve it. In the County Development Plan the North Downs and the Stour valley north of Wye are designated an Area of Great Landscape Value‡. Such is their beauty that the County Council recently proposed to the National Parks Commission that they should be upgraded to an Area of Outstanding Natural Beauty. This proposal also included a strip on the north eastern edge of Romney Marsh and the escarpment overlooking it. Proposals are likely to be made in the revised County Development Plan to designate as an Area of Great Landscape Value‡ a large area extending (in East Kent) over the hills of the Central Weald from Goudhurst to Appledore between Tenterden and Sandhurst and including the Isle of Oxney. Development control policies aim to conserve the present pattern of well-defined settlements in the predominantly rural scene. It is important that the new town should not conflict with these aims and that, provided adequate land is available to build a really attractive town where people can live a full urban life, the total development should be as compact as possible.

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*Kent Development Plan Quinquennial Review 1963—Report on Survey and Analysis—Part III.

†Land Classification Survey completed by the Research Group of the Agricultural Land Service, Ministry of Agriculture, in 1962.

‡The existing and proposed Areas of Great Landscape Value are shown on Foldout 1.

Conservation of villages

52. Many of the towns and villages of East Kent are of outstanding historical and architectural interest, and the County Council is much concerned to protect them, particularly in the conditions of rapid change which may follow from the speedy growth of the new town. (The most interesting settlements are shown on Foldout 1.) Indiscriminate developments of new housing in the villages could cause them to lose their identity and should be strongly resisted. Since more than sufficient land is available in East Kent to meet the demands for residential development anticipated up to 1981, and since development in the new town might be more or less compact up to that time, it is likely that strong demands for development in the villeges may materialise only as the new town continues to grow after 1981. Such demands could possibly be met, in part, by selecting the most suitable villages for some expansion, and perhaps also by creating one or two new villages. Attractive living conditions in the new town would much reduce the demand for new homes outside it.

Recreation

53. The County Planning Officer's summary of the position is as follows: "A much larger population living in East Kent, with more money to spend, possibly more leisure time, and a great deal more mobility than is the case today, would create heavy demands for recreational facilities. In East Kent these facilities are already varied and numerous, ranging from those in the many different coastal resorts to the recreational areas of the countryside. No quantitative assessments have yet been made of the numbers of people visiting different places for recreation, but general observation indicates that in certain coastal locations facilities are already overstrained. The undeveloped stretches of the coastline will inevitably be especially vulnerable in the face of increasing recreational demands, and the County Council has formulated a comprehensive policy for the preservation and improvement of the coast for holiday, recreational, scientific and amenity purposes. The countryside has a large potential for meeting demands for recreation, particularly through the provision of country parks, and in the use of wet gravel workings for water sports. But many country roads already suffer from traffic congestion, and this is an important factor in the siting and general control of countryside recreational areas. As a general consideration, it does not appear that Ashford's requirements for recreational facilities outside the urban area would need to be catered for as a separate item additional to the general provision for the Region, but such Regional provision ought to keep pace with the growth of population at Ashford and in East Kent generally."

Chapter 3: Prospects For Growth

THE PHYSICAL BACKGROUND

The Area of Search

54. The Terms of Reference stated that we should not look beyond a radius of approximately ten miles of Ashford for a site for the new town. The ten mile radius is shown on Foldout 1: we have called the area within the circle the Area of Search.

Scenery and agriculture

55. The dominant features of the landscape fall naturally into four groups—the chalk hills, the Central Weald, Romney Marsh and the Low Weald.

56. *The chalk hills* of the Downs, rather dry, rolling, upland country, in these parts fairly well wooded, take up most of the northern half of the circle. As County Council policies suggest, the best use of this area seems to be for farming and countryside recreation. In addition it forms an invaluable buffer between the string of towns along the north coast of Kent and the corridor of urban development and communications on the Maidstone-Ashford-Folkestone axis. Part of the attraction of the Downs lies in the fine views from the escarpment across the Weald to the hills in its centre, to Romney Marsh and the sea beyond. This is particularly true of the steep slopes north-east of Ashford.

57. The high ground of *the Central Weald,* in the south-west of the Area of Search, is heavily wooded and beautiful. Though quite different in character from the Downs, its beauty and potential value for recreation puts it in much the same class, and this area too could provide an important buffer in future—between the Ashford-Maidstone urban axis and the towns on the south coast.

58. *Romney Marsh,* in the south-east, provides a complete contrast. Flat, and only a little above sea level, it is an area of wide, reclaimed marshes and shingle beaches separated from the rest of the Area of Search by the line of cliffs along its northern edge. The marsh soil is exceptionally fertile and valuable for agriculture.

59. The wedge of country in the middle of the Area of Search is part of *the Low Weald.* Bands of Gault Clay, Greensands and Wealden Clays are exposed parallel to the escarpment of the Downs. The Great and East Stour drain shallow valleys on the Gault Clay and are separated by a ridge, where the Greensand is exposed, from the wider, flatter plain of the Wealden Clay drained by the River Beult (a tributary of the River Medway). This ridge is prominent both east and west of Ashford, though near the town only a few low hills mark the outcrop. West of the town, the rising ground partly masks the view of the Beult valley from the Downs. The ridge, the Great Stour valley and the chalk escarpment form one sweep of countryside scenery which has a unity which we think it is

essential to preserve. East of Ashford the Greensand ridge gradually becomes more prominent and finally forms cliffs at the coast and along the north eastern edge of Romney Marsh. The Greensand areas are well drained and form very pleasant countryside; but where some of the more massive outcrops overlie the softer clays of the Weald they are liable to landslip, as is particularly noticeable in the cliffs above Romney Marsh.

Constraints on development in the Area of Search

60. Our examination of the physical background gave us a first idea of where a new town might be built without drastic disruption of current policies on the use of land in East Kent. Constraints immediately appeared in the scenic and potential recreational value of the North Downs and the Central Weald hills and in the quite distinct character and fertile farmland of Romney Marsh. This left a wedge of country in the Low Weald within which there were less overriding constraints against development.

61. So far we have looked at the Area of Search from the point of view of site disciplines rather than from the point of view of the success of the new town itself. The first essential to economic success is proximity to main regional and national communication links. The principal focus of communications in the Area of Search is Ashford. The new town would benefit from association not only with this focus but with the many facilities which the existing town could provide during the early phases of growth.

62. We therefore concluded, from the points of view of both the existing constraints of the area and the requirements of the new town, that we should concentrate our search for a site in this wedge of country associated with the Low Weald and its fringes.

The Study Area

63. We defined an area covering the Low Weald and its fringes, using parish boundaries, and called it the Study Area; it is shown on Foldout 3. Within this area we then carried out a more detailed examination of the physical background and constraints.

Agriculture

64. In the immediate vicinity of Ashford we have relied entirely on the Ministry of Agriculture's latest survey (see Chapter 2). This survey, by which land is classified according to those inherent physical properties which make for high and consistent yields and versatility of use, is described more fully in Appendix 2; the results for the Ashford area, where available, are shown on Foldout 2. The survey reveals two big blocks of high quality land associated with the edge of the Chalk and Greensand outcrops. Between the two blocks there are patches of land of similar quality, but elsewhere the land is of lower quality. So, there is an extensive area of land to the south and west of Ashford where the agricultural case against urban development must be less strong than in the two blocks of high quality land.

Woodlands and parklands

65. Woodlands are shown on Foldout 1. The most extensive in the Study Area lie to the south of Ashford where considerable acreages have recently been planted as productive woodland, much of it by the Forestry Commission. The crops will

not mature for some sixty years or more (that is well after 1991), and this fact would have to be considered when determining the phasing of any other development. Except in the flattest and wettest parts of the Beult valley towards tha western edge of the Area of Search small plantations and coppices make for a generally well wooded scene. Woods such as these lend themselves to several uses in urban development. They can be left much as they are as recreation areas, noise baffles, dividing elements between different parts of the town or as buffers between town and farmland. They can also be a great help in screening urban development from the surrounding countryside or from higher ground, as in this case, from the Downs and the hills of the Central Weald.

66. Immediately west of Ashford lies a group of parklands which could have considerable value as recreational open space.

Nature conservation

67. One of the most important conservation sites in the vicinity of Ashford is the Nature Reserve at Wye and Crundale Downs (see Foldout 1). It extends over some 120 acres of the escarpment north east of Ashford and is an outstanding example of chalk grassland. Public access is allowed to part of the Reserve where there are fine views across the Weald. This location is a popular spot in the summer months—so popular that the Nature Conservancy are concerned lest more visitors should destroy the grasslands.

68. Of the conservation sites near Ashford those on the Wealden Clay are primarily for the conservation of woodland environments, for example, Ham Street Woods and Hoad's Wood. The local Nature Reserve at Hothfield Common covers an area of heathland and bog; conservation needs have been successfully integrated with public access here and the Reserve is also used for educational purposes.

69. The effort already put into conservation schemes should clearly be respected in plans for future urban development; in the interests of education, research and recreation the areas concerned should be protected as far as possible from the detrimental effects of increasing population. In inland areas much can be done by providing for public access to alternative places with similar attractions; on the coast the same policy could succeed—for example in diverting pressure from Camber Sands or Pegwell Bay—but may be more difficult to implement for lack of suitable alternative sites. Water-based sports at inland reservoirs could help to alleviate pressure—from day visitors from London as well as local people.

Mineral resources

70. There are no extensive mineral resources of economic value in the Area of Search or the Study Area though those that are found include brick clays from the Gault and Weald Clays; ragstone, used principally for road metal, and some building sands from the Greensands; and chalk, of course, though this is quarried only for agricultural purposes. Quarries now being worked are small and existing permissions cover only limited areas. None of the deposits is considered worthy of special measures to ensure extraction before being built over.

Villages in the Low Weald

71. The County Planning Officer's report pointed out the importance of the villages in East Kent, and described the County Council's efforts to conserve them. In some of the villages the old nucleus is composed of tightly-grouped buildings —Headcorn is an example—so that there are few views out of the villages. In

these cases, especially where the countryside is flat, one is hardly aware of the surroundings. Others are more loosely grouped, for example, Smarden and Biddenden; in these one is constantly aware of the surrounding countryside seen across cricket field or meadow. The latter type of village could be spoiled, visually, much more easily than the closely knit villages by careless urban development nearby, but all of them could soon lose their quality if large numbers of people needed to use their shopping and social facilities or the roads which invariably go through, not round, them. Conserving a village is, in the last resort, a matter of meticulous design and not a matter that can be dealt with at Designation stage. Such care will not be easy to achieve at a time of very rapid development. This aspect is discussed in greater detail in Chapter 5.

Note on statistical references

72. Figures of population, services, employment, etc. were first estimated in relation to the Study Area. From this work the Designation Area was eventually defined, but this, in turn, necessitated an adjustment of the figures. For convenience most of the figures given in the remainder of this chapter are the adjusted figures for the Designation Area. The Designation Area is shown on Foldout 10.

POPULATION FORECAST FOR 1991

Introduction

73. In this section of the chapter we discuss the increase in the population of the recommended Designation Area, distinguishing between that due to natural increase in the local population and that due to immigration and the natural increase of immigrants.* We give some details of the assumptions on which the forecast is based, and we express the results in terms of the increase in the total population and the working population. Further explanation of the assumptions on which the forecast is based and the main steps in the calculation are set out in Appendix 3.

Local population

74. The local population, as we define it in Table 1, comprises all the people living in an area in 1966 and those who are expected to move in of their own accord between 1966 and 1971. Our calculations of natural increase in the local population were based on 1961 Census of Population data, as more up-to-date age and sex structure figures are not yet available. An adjustment was made for actual immigration into the area between 1961 and 1966 (estimated at some 1,300 people). Recent trends suggest that about 200 people each year can be expected to move in of their own accord between 1966 and 1971.

Planned immigration

75. We have assumed that if a Development Corporation were established everyone moving into its area would come within the scope of the plan for the new town whether they moved into public authority housing or into private housing. It seems unlikely that a Development Corporation could operate on any substantial scale much before 1970-1971. We have therefore assumed, for statistical purposes, that the building programme under the present town expansion

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*We use "immigration" in the sense of net movement into the area.

agreement would go on as planned until 1971, except that we assume there would not be the anticipated drop in housing completions in 1970 so soon before a major expansion scheme got under way. Instead we assume that the number of dwellings completed, and therefore the number of immigrants, would reach a total in 1970-1971 similar to that for 1969-1970. Planned immigration therefore includes all those moving into Ashford under the town expansion scheme between 1966 and 1971 and all immigrants after 1971.

The immigration programme

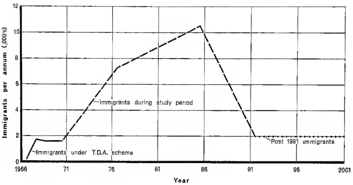
76. The programme (illustrated by Figure 3) has been determined primarily by the need to bring in 75,000 people, including their natural increase, by 1981 and 150,000, not counting their natural increase, by 1991. These figures were specified in our Terms of Reference. Two other considerations influenced our choice of the programme illustrated. One was the need to allow for a run-down period towards the end of the planned expansion programme—an expanding town gains impetus of its own and it is unrealistic to expect that immigration to it can be stopped suddenly. Even so we have only been able to allow a run-down period of five years. The other consideration was that the administration machinery required to build so large a new town over a short period of years would be extremely complex and we presume that there would be advantages in its operating at, or near, maximum output for as many years as possible. However, the phasing of immigration dictated by the Terms of Reference, with more than half of the immigrants coming in during the final decade, means that immigration would be continually rising during the early 1980s instead of settling to a "plateau". The immigration programme we illustrate was drawn up in terms of incomers, not counting their natural increase after arrival in the area; immigration by 1981 was set at 70,000 resulting, with natural increase, in a total somewhat higher than 75,000. Any reduction in the early period would, however, make an even sharper peak in the 1980s essential. There is further discussion in Chapter 6 of the problems for the orderly growth of the town which stem from the mmigration programme specified in the Terms of Reference.

77. As Figure 3 illustrates, we have looked forward to the end of the century so that we can indicate some of the post-1991 implications of the new town. For this later period we have supposed a continuing small flow of immigrants—an arbitrarily chosen figure of 2,000 per annum.

Natural increase in the population

78. Natural increase in any population is notoriously difficult to estimate with any great degree of accuracy, as past experience has shown. We give below a high and a low estimate covering a range of possibility rather than a single, fixed estimate. For the purposes of this study we have taken the higher one as the working assumption since the Designation Area we recommend must be large enough to cater for all the foreseeable demands for land in the new town.

79. The high and the low estimates are the result of applying alternative sets of assumptions as to four key variables to a population of a given age and sex structure. The four key variables affect the natural increase in the population; they are mortality rate, age at marriage, family spacing and the mean number of live births per marriage. (The last three affect fertility.) Broadly speaking, one



Period (mid-year)	Number of Immigrants	
	Quinquennial total	Cumulative total
1966-71	6800	6800
1971 - 76	22600	29400
1976 - 81	40300	69700
1981 - 86	49100	118800
1986 -91	31100	149900
1991 - 96	10000	159900
1996 - 2001	10000	169900

Figure 3. The Immigration programme 1966 - 2001

set of assumptions, which results in the lower estimate, is based on fertility variables as they stood in the early 1960s, and a relatively gradual decline in mortality rates; while the other set, which results in the high estimate, is based on more recent trends in fertility variables (assumed to continue until after 1971) and a faster decline in mortality rates.

80. An estimate of the age and sex structure of the local population and of the immigrants was necessary. The structure of the 1961 population was obtained from the Census of Population; the adjustments made for people who have moved in since then were based on a relatively "young" age structure assumption. Planned immigrants are assumed to have the same age and sex structure as recent immigrants to other new towns. It may be that rather more elderly people would move into this new town than we have allowed for, but at this stage it has not been possible to decide what might be a realistic estimate of the proportion of elderly people who could be catered for and who might be persuaded to move to the new town.

Total population through the Study Period

81. Table 1 illustrates the very rapid increase in the immigrant population. By 1976 there would be twice as many people living in the area as there are today; by 1981 between three and four times as many, two thirds of whom would be post-1966 immigrants to the area and their children. Table 1 illustrates the difference between the high and the low rates of natural increase—it can be seen clearly by 1986. In the high estimate the population would increase more rapidly than in the low; this is because more young people would be growing up in the second generation, and marrying earlier, therefore there would be more children in each family of first and second generation immigrants and the death rates would be lower. These factors would make for a "snowball" effect which would further widen the disparity between the high and low estimates by the end of the century.

82. (Note: From now on we will refer to the new town near Ashford as the new city—this seems a more appropriate term for an urban community of about 240,000 people.)

Table 1

Population: forecast of quinquennial increase in the Designation Area 1961-1991: local and planned immigrant populations: high and low estimates ('000s)

		HIGH ESTIMATE *Total*	*Local Population*	*Planned Immigrants*	*LOW ESTIMATE* *Total*	*Local Population*	*Planned Immigrants*
1961	Total	34·2	34·2	–	34·2	34·2	–
1986	Incr.	1·5	1·5	–	1·5	1·5	–
	Total	35·7	35·7	–	35·7	35·7	–
1971	Incr.	9·8	2·3	7·5	8·9	1·7	7·2
	Total	45·5	38·0	7·5	44·6	37·4	7·2
1976	Incr.	27·3	1·4	25·9	24·8	0·5	24·3
	Total	72·8	39·4	33·4	69·4	37·9	31·5
1981	Incr.	50·6	1·5	49·1	45·7	0·6	45·1
	Total	123·4	40·9	82·5	115·1	38·5	76·6
1986	Incr.	65·9	1·8	64·1	58·5	0·8	57·9
	Total	189·3	42·7	146·6	173·6	39·1	134·5
1991	Incr.	52·1	1·9	50·2	44·6	0·7	43·9
	Total	241·4	44·8	196·8	218·2	39·8	178·4
2001	Total	310·1	49·8	260·3	268·0	41·7	226·3

Population requiring jobs

83. An estimate of the population requiring jobs was needed for the employment study and was calculated by applying activity rates* to the estimated population in different age-sex groups. The activity rates assumed were based on those published in the Ministry of Labour Gazette. The forecast is given in Table 2.

Table 2

Numbers of people in the Designation Area requiring jobs 1966-1991 ('000s)

Year	*High Estimate*	*Low Estimate*
1966	16·1	16·1
1971	20·1	20·1
1976	31·0	30·7
1981	51·7	51·0
1986	78·9	77·3
1991	103·0	99·1

MEETING THE DEMAND FOR EMPLOYMENT

The definition of locally and externally dependent industries

84. We have found it helpful to distinguish between manufacturing and service industries† which rely on selling their goods and services locally and those which market in a wider field. We have called the latter externally dependent industries: they are generally manufacturing industries, though they do not include all manufacturing industries. For example, in most places the bread and flour confectionery industry consists of bakeries and similar firms serving, for the most part, the local market; the few industries of this kind have been grouped in the locally dependent category. Primary industries (including agriculture) and certain types of service employment (unimportant in the Study Area at present) are treated as externally dependent.

85. In the locally dependent sector, which consists mainly of service industries, growth is principally a response to an increase in population or in local prosperity. Experience in other new towns has shown that it is apt to be a slow response. Much of the immediate increase in demand may be taken up in nearby centres, while the growth of local service employment may be held back because of the large scale physical development necessary to accommodate it. Sometimes, too, large scale operators in the distributive trades may be reluctant to move in until they are sure the new centre will have a sufficiently large catchment population of its own. However, as we explain later, in a new city near Ashford the response is unlikely to be as slow as in some of the earlier new towns.

86. Growth in the externally dependent sector is independent of local spending power. This is the "export" sector on which a local economy is based and it will therefore be the principal agent in building up employment in the new town. It is, indeed, the vital key. In general, people cannot move in unless they can work, and service employment will not grow until they have moved in, so, particularly at first, there must be great reliance on the externally dependent industries.

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*A shorthand term denoting the proportion of population at work in an age-sex group.

†Manufacturing industries are here defined as those in the Standard Industrial Classification, Orders III-XVI: service industries, Orders XVII-XXIV: primary industries, Orders I and II.

Industry established in the Ashford area

87. Before studying the growth of employment it was necessary to look at industry already in the area and at recent trends there. For the latter purpose the Ashford Employment Exchange Area proved a convenient unit. Although it covers a different area from both the Study Area and the Designation Area, the bulk of employment in manufacturing and service industry is in Ashford itself. The picture which emerges can therefore be taken as a fair representation of that for the other two areas. (As we said earlier our forward projections were related to the Study Area and later adjusted to the Designation Area.)

88. Total employment in the Employment Exchange Area rose from 17,200 in 1952 to 21,000 in 1965*, a rise shared equally by service and manufacturing employment and concealing a decline in agricultural and railway employment. The increase in manufacturing employment was already occurring before the town expansion scheme began: one-half of the 1952-1965 increase, in fact, took place before 1959, when the agreement was signed. The rundown of the railway workshop since the latter part of the 1950s—its contribution to manufacturing employment fell from 44% in 1952 to less than 26% in 1965—created a labour pool on which incoming industry could draw. By now, however, both this and the female labour reserve appear to have been exhausted and labour shortages are a problem in the area. Despite the arrival of some new firms, however, manufacturing employment in the Exchange Area still accounted in 1965 for only 30% of total employment compared with 38% for Great Britain.

89. In 1965, 60.2% of total employment was in the service sector compared with 57.0%† in Great Britain. The categories employing a higher than national percentage were Construction, Transport, Professional and Scientific and Miscellaneous Services. The greatest divergence from the national pattern was in the last category—the explanation lies mainly in the presence of several large motor repair workshops.

The growth of industry

90. A survey of the larger established manufacturing firms in the Study Area was made using postal questionnaires and interviews. The response accounted for 70% of total manufacturing employment. The growth which might be expected during the earlier part of the study period was assessed from the results, though for later years it was necessary to extrapolate from recent trends or apply national growth rates. The results are incorporated in Table 3. Ashford is, at present, a small industrial centre, and our survey did not suggest that industry there now will experience especially rapid growth. It cannot therefore be expected to make a substantial contribution towards meeting the demand for new employment in the new city—the total growth in a 10 year period is assessed at only 1,500 employees. Within the Designation Area a major part of the growth of established industries is expected to come in the "Food" and "Engineering" categories.

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*Figures obtained from Ministry of Labour (these cover employees carrying normal National Insurance cards, and do *not* include self-employed persons, certain public employees and some persons who work in Ashford but whose National Insurance cards are exchanged elsewhere).

†This figure includes certain employees not counted in the local figure.

91. The next step was to estimate the growth in locally dependent industries in the new city. The faster the growth in this sector the less heavily need the new population rely on externally dependent industries for employment. An important consideration here is the extent to which new service industry may lag behind population increase. The delay may be less than was the case in earlier London new towns—competition from metropolitan centres may be less keen and the city's own population would soon outgrow that of other towns in East Kent, putting it in a strong position to attract service industry. A gravity model exercise was carried out using shopping expenditure as the basis and taking the County Planning Officer's population estimates for surrounding areas in East Kent. This indicated that the new city could be independent of other service centres by the late 1980s. After that growth in locally dependent industry would be strongly influenced by population increases in East Kent since the new city would take over many sub-regional functions.

92. Table 3 gives a summary of the growth expected up to 1991 in the externally dependent activities already established in the Study Area and in locally dependent industry (high population estimate). The Table also compares the estimate of jobs which will be available from these two sources with the numbers of workers requiring jobs. We have called the difference the "job gap" and it is this gap which would have to be filled by externally dependent industry if the target of a balance of jobs and working population is to be achieved. We have taken this objective to apply to the new city and its surrounding rural hinterland, and have taken the Study Area as an adequate approximation for this purpose.

Table 3
Employment in the Study Area 1965-1991
(Summary of growth in employment in industries already established and in locally dependent industry (High population estimate)) ('000s)

Standard Industrial Classification	*Sector*	*1965**	*1971*	*1981*	*1991*
1. Externally dependent industry already established in 1966					
i–ii	Primary	2	2	2	1
iii–xvi	Manufacturing	8	9	11	11
xvii–xxiv	Services	†	†	†	†
	Total	10	11	13	13
2. Locally dependent industry in the new city					
iii–xvi	Manufacturing	†	†	1	2
xvii–xxiv	Services	14	18	33	64
	Total	14	18	34	66
3. Workers not included in Ministry of Labour statistics‡		2	4	6	10
TOTAL OF ABOVE		26	32	52	88
People requiring work		31	36	68	121
Job gap		5	5	16	33

Figures are rounded to nearest 1,000, apparent errors are due to this.
* 1965 figures obtained from Ministry of Labour
† Less than 500
‡ See footnote para 88: estimated from Census of Population 1961

Externally dependent industry in the new city

93. The great majority of externally dependent firms would be manufacturers. It is not possible to specify the type of manufacturing industry which may come to

the new city except within very broad limits, but it is likely that the engineering, electrical and light manufacturing industries which have lately formed the basis of much of the industrial expansion in South East England—and which show signs of continuing to be a main prop of expansion in the nation's economy—will be attracted to the new town and will take up much of the available space. We would expect most of the new industry to consist of new branches, or transfers, of metropolitan firms, especially ones operating mainly south of the Thames. The new city's attraction as a location for new industry is discussad in Chapter 6.

94. Part of the job gap would probably be filled by employment in "footloose" or externally dependent offices—such as, for example, a large clerical department of an insurance company or the headquarters of a firm with a regional or wider field of operations. There has been a considerable outflow of office jobs from London in recent years, as the statistics of the Location of Offices Bureau show, and the present Government restrictions on office-building will help to sustain it. It may be that only a few types of office are "footloose" in this sense, and that the scope for continuing movement in the long-term is limited. Nevertheless, the new city would have many attractions for offices leaving London—a quick and convenient rail link with Central London, a large pool of workers, and good living conditions for staff. The provision of a suitable range of housing, particularly housing for sale, is an important factor which, in our view, should be given considerable weight if the new city is to become an office centre of appreciable size. Furthermore, while the effect of tha Channel Tunnel terminal not far away is hard to assess (see Chapter 6), it presumably would, to some extent, increase the city's attractiveness for offices. Ashford itself has already been suggested by the Standing Conference on London and South East Regional Planning as one of a few selected towns in the South East to be encouraged as new offica centres. In our examination of land requirements and the possible pattern of land uses, we have assumed there would be 5,000 "footloose" office jobs by 1991—this seems a reasonable assumption in view of the factors mentioned above.

95. We assume that externally dependent industries would provide some 28,000 manufacturing jobs and 5,000 office jobs to "fill" the job gap.

Location of employment

96. Table 3 shows that we estimate that 121,000 jobs would have to be provided in the Study Area by 1991. Table 4 shows where they may be located. Some 9,000 jobs* would be within the Study Area but outside the Designation Area; about 5,000 of these jobs would be in externally dependent industries (agriculture and a few manufacturing industries already established). About 18,000 jobs would be located in Ashford town—some 8,000 of them in manufacturing industry and the rest in the service sector. The remaining 94,000 jobs would be in the new city. Our concern now is to show how much land would be required to provide adequate space for this employment; in discussing this wa give the distribution of externally and locally dependent employment.

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*This would be much fewer than the number of workers in the same eree; the question of movement to work in and out of the new city is discussed further in peragraph 104.

Table 4
The location of jobs in the Study Area in 1991

Location	*Externally dependent*	*Locally dependent*	*Total*
Total	46,000	75,000	121,000
Outside the Designation Area	5,000	4,000	9,000
In Ashford town	8,000	10,000	18,000
In the new city	33,000	61,000	94,000
in new industrial estates	25,500	5,000	30,500
in the city centre	5,000	24,500	29,500
elsewhere	2,500	31,500	34,000

Figures are rounded to the nearest 500

Employment on new industrial estates

97. Most manufacturing firms moving into the new city are likely to want sites on new industrial estates, and we estimate that they would provide some 25,500 of the 33,000 jobs needed in externally dependent industry. A few light manufacturers might be located with advantage in or very near residential areas, particularly where they employ female and part time labour. We have allowed for some 2,500 workers in this type of firm in 1991 (that is the remainder of the 28,000 jobs in externally dependent manufacturing industry) and in calculating the gross residential area we have allowed the same space standards per worker as on other new industrial estates (paragraph 98). There would be some non-industrial uses (locally dependent) which would require the large sites and facilities which could be provided only on big industrial estates—warehousing is an obvious example. A further 5,000 jobs in this category have been allowed for, bringing the total number of jobs on industrial estates to 30,500.

98. There has been a clear trend in recent years for the number of workers per acre on industrial estates to fall, and there is every reason to think that the trend will continue. The number per acre tends to be especially low in new development where purpose-built single storey factories, adequate transport facilities, and space for parking and future expansion, must all be provided as incentives to industrialists moving from their old establishments or setting up new branches some distance from the parent factory. We consider a space standard of 50 workers per acre until 1971 and 35 workers per acre thereafter would be adequate.

99. In other new towns it has proved by no means unusual for a firm to need twice its initial acreage within a few years of its move—after all it is often the firm which is expanding unusually quickly which seeks the spacious and modern conditions of a new town industrial estate. Therefore for incoming industry we have allowed twice the acreage initially used. This provision would have to be reconsidered carefully towards the end of the period, since it could lead to a position where there could be spare capacity for a greater number of people to be employed in the Designation Area after 1991 than could be housed there. We have also allowed a small acreage to give some freedom in the choice of site.

100. About 1,300 acres in new industrial estates would be needed in the Designation Area by 1991. More than adequate provision is made within Ashford's Town Map to meet the demand for industrial land up to 1971; some 1,100 acres would be needed in the new development (1971-1991).

101. We would expect industrial estates to be at least 200 acres in extent, and often more if they are to offer the advantages of large individual sites, good

internal roads, plenty of space for parking and adequate public and communal facilities at economical prices. Flat sites have advantages for industrial buildings and can be found within the Designation Area but undoubtedly there is an even more important advantage in very high standards of accessibility by road. Links to both the new city's internal major routes and the national networks are of first importance. In recent years few firms in Ashford or elsewhere have taken advantage of opportunities for rail links from new sites, but it seems likely that in future very large establishments may require this facility—it is one that can be very easily provided in the new city.

Employment in the city centre

102. Over 29,000 people would be employed in activities likely to be located in the main city centre in 1991—nearly as many as in the new industrial estates. Of these more than 24,000 would be employed in service industries—shops, restaurants, local offices, etc.—the other 5,000 people would work in externally dependent offices which would be located in the major central area so as to be associated with its service facilities and very good communications with other East Kent centres and London. The land required has been calculated both in relation to the central area's function and in relation to employment and is dealt with in another section of this chapter ("Centres").

Employment elsewhere in the new city

103. Some 34,000 people would be employed in other parts of the new city in 1991. This large group comprises all the people who would provide educational, medical and other professional services, those who would work in local service centres and in the construction industry and so on, and the 2,500 people working in light manufacturing industry mentioned above. The land they require is accounted for in the calculation of the gross residential area since we do not distinguish comparatively small land uses or those where the location of individual units is determined by many detailed considerations (e.g. schools).

Commuting into and out of the new city

104. The exact extent to which the new city would be a self-contained employment unit is impossible to ascertain. Some evidence of commuting out of the Study Area at present is shown by the estimated job gap in 1965 (Table 3) but there are several possible sources of error. The gap may well have been exaggerated by the fact that the eastern boundary is coincident with the boundaries of the Urban Districts of Folkestone and Hythe—obviously a number of people living in the Study Area will work in those towns. The western end of the Study Area is well within the Maidstone catchment area. There is some commuting to London. It would be unrealistic to expect there would be no commuting to London from the new city. On the other hand, the attractions of working in a city nearer home would be very great, and, in the long run, we see no reason to disagree with our Terms of Reference in assuming that employment and the working population should be in balance i.e. that commuting out should be balanced by commuting in. To this extent the wishes of Kent County Council would be met in that jobs would be available for other workers in East Kent.

Water supply

105. We understand from the Mid-Kent Water Company (who organise supplies in the Ashford area) that the Water Resources Board have estimated that up to 90,000 people consuming 77 gallons per head per day (ghd) could be supplied in the Ashford area from existing sources of water (boreholes and wells in the Chalk and Lower Greensand outcrops) and from a scheme, already planned, to extract ground water at Chilham in the Stour valley. But, if the consumption rate rises to 100 ghd by the end of the century, as seems quite possible, these same sources would supply only 70,000 people.

106. New sources of water would, therefore, have to be developed for a population above this figure, most probably by building pumped storage reservoirs on the River Rother (see Foldout 4). These measures could supply up to 23 million gallons per day—enough for 230,000 people consuming 100 ghd. Altogether supplies may be available for some 300,000 people.

107. This means that more than sufficient water could be made available to supply the higher estimated population in the recommended Designation Area in 1991. If the population did increase, as we suggest it might, to over 300,000 by the end of the century there might be a need for a modest amount of re-use of water.

108. There may, however, be a problem in phasing reservoir construction to match the increase in the population. The design and construction of large reservoirs can take up to ten years. Therefore, since such reservoirs might be needed by the late 1970s, it would be necessary for engineering studies to be put in hand almost as soon as the area was designated.

Surface water drainage

109. Three rivers drain the Low Weald and its fringes; they are the Great Stour, the East Stour and the Beult. There are considerable areas in each valley where waterlogging occurs, though the areas known to have actually been flooded are less extensive (see Foldout 1). Neither of these characteristics can be regarded as likely to act as an overriding constraint on development—both would be largely dealt with by normal surface water drainage arrangements and by the improvements to the river beds mentioned in the following paragraph.

110. Urban development on the scale envisaged in our study would inevitably result in larger quantities of surface water run off than could be dealt with by the rivers in their present state. The River Beult in particular has a very limited capacity. Balancing lakes, which would enable the flow to be evened out between wet and dry periods, would have to be built and the river channels might have to be widened and improved. It might be necessary to improve stretches of the rivers outside the Designation Area, although it is not anticipated that these improvements need extend for more than a few miles. Possible locations for balancing lakes are shown in Foldout 4.

Sewage disposal

111. Ashford itself is served by a recently constructed sewage works, at Bybrook, which was designed to cater for a population of 36,000. A number of small works, many of which are inadequate, serve the surrounding rural areas. Sewage effluent is discharged into the three rivers.

112. Decisions on the location of new sewage works must, of course, await the completion of a Master Plan, but, so far as we can tell at this early stage, new development in the Ashford area would best be served by the construction of two new sewage works. One might be located on the Great Stour downstream of Ashford in the vicinity of the existing works at Bybrook, to serve development in the Great Stour and East Stour catchment areas. A second works might be located on the River Beult serving development within its catchment area. At each of the proposed works the effluent would require treatment to a very high standard. In the Beult this is made necessary by the very low dry weather flow which does not allow for much dilution; in the Stour it would be necessary in order to minimise the risk of polluting the trout fisheries in the Great Stour below Wye.

Refuse disposal

113. All domestic and trade refuse is at present disposed of by means of controlled tipping. The County Planning Officer points out in his Report that there is likely to be a major disposal problem through lack of available tipping sites in Ashford Urban District in about five years' time. The problem would be greatly increased if new development were to take place, and pulverising and incineration plant would almost certainly be required even in the early stages of development.

Electricity

114. The Central Electricity Generating Board organise supplies of electricity to the South Eastern Electricity Board which then distributes to the consumer. Major generating stations at Dungeness A and Richborough in East Kent, and at Littlebrook and Northfleet in north Kent feed a network of 400 KV and 132 KV transmission lines: the location of the lines which cross the Area of Search are shown on Foldout 4.

115. The Board consider that there would be enough generating capacity transmitting to the super grid (assuming that the power stations which are under construction at Dungeness B and Kingsnorth become fully operational, and provided some additional peak load generation could be made available) to satisfy the likely demand from the new development until 1991. They suggest that redevelopment of the existing power station at Ashford could meet the additional peak demand.

116. A new 400-132 KV sub-station occupying a site of some 40 acres with suitable 132 KV transmission access would be required on or near the route of the existing 400 KV Dungeness-Canterbury transmission line where it passes close to the Designation Area. In addition, five or six new 132/33 or 11 KV sub-stations would be needed to provide bulk supplies to the Area Board.

117. The South Eastern Electricity Board anticipates no difficulty in arranging for supplies to reach the consumers.

Gas

118. The South Eastern Gas Board is responsible for the production and supply of gas in the East Kent area. At present, there are production units at Dover, Maidstone, Gillingham, Tunbridge Wells and Grain from which gas is distributed via high pressure mains to holding stations in all the major population centres.

119. The Board is in the process of constructing a super-grid supply system in South East England which, in due course, will be connected to the natural gas supply system. It is anticipated that any major development in the Ashford area would be supplied from a natural gas source, and that there should be no difficulty as regards provision of gas to the new development.

General Post Office

120. Given an adequate notice of the build-up of population and subsequent demand for telephone and other services, GPO anticipate no major difficulty in their provision.

General conclusion

121. From our review of the essential services, it appears that there should be no insuperable problems involved in meeting the needs of the proposed population.

HOUSING

Objectives of the housing study

122. Our objectives have been firstly to determine how much land might be required for housing and ancillary uses and to consider the factors which would govern the location of residential areas; secondly to study some of the implications of the house-building programme and policies of tenure; and finally to assess housing as an element of the total capital cost of building the new city. The assessment of the demand for new housing on which discussion is based is given in this section and the other matters are considered later in the report.

The demand for new housing

The population living in households
123. Not everyone would live in households and need family dwellings; some would live in institutions such as hospitals and hostels of various kinds. We have assumed that this proportion would remain at about the present national level of 3.4% throughout the study period. The population in households in 1991 is estimated at 232,900 on the basis of the high population estimate.

The future of the present housing stock
124. During the next twenty five years there is bound to be some redevelopment, particularly in Ashford itself where a programme for dealing with houses that have reached the end of their useful life has already been drawn up. We accepted this programme as the basis for our estimate of demolition and redevelopment

but we assumed a doubling of the rate of demolition to allow for road works and other changes of land use; we also made some allowance for demolition and redevelopment outside the present Urban District. According to our calculations, some 2,100 dwellings would be demolished between 1966 and 1991 affecting some 5,900 people. 2,900 of these people could be accommodated on the sites redeveloped for housing at standards comparable to those in the new housing areas, leaving 3,000 to be accommodated on new sites.

125. We have assumed that the rest of the existing housing stock in the Designation Area would be in use until well after 1991 and that it would house the same number of people as at present: some 28,600 people in 1991.

The demand for housing on new sites
126. When people living on redeveloped sites and those living in houses already built in 1966 have been taken into account the number of people needing housing on new sites by 1991 would be about 201,400. Of these we assumed 9,800 to be accommodated within Ashford under the existing Town Development Act arrangements leaving 191,600 people to be accommodated in the newly developed areas between 1971 and 1991.

127. In any town a certain number of houses are vacant at any one time and we consider a 3% surplus should be allowed for this. We have not made any allowance for people sharing dwellings because few are likely to do so.

128. Thus dwellings on new sites for a population equivalent to 197,300 people would be needed in 1991. A proportion of the population would live in areas which can be statistically absorbed under other land uses, for example central areas. We have assumed 1.5% (3,100 people) in 1991 would be in this general category. The rest, 194,200, would need housing on new sites elsewhere in the new development by 1991.

Satisfaction of demand

Forms of development
129. Each of the possible housing forms in which this population could be accommodated has a large number of individual characteristics, but those which concern us most at this stage are density, building type and car traffic generation. We can express these characteristics in terms of three broad net residential density categories—lower, medium and higher.

i. Lower density: A net residential density range of 15-30 people per acre; mainly detached houses with large gardens; very high car-ownership and usage; relatively little reliance on public transport.

ii. Medium density: A net residential density range of 30-50 people per acre; mainly terraced and other concentrated 2-3 storey building types with gardens; high car-ownership and usage but some reliance on public transport.

iii. Higher density: A net residential density of over 50 people per acre; some in more compact 2-3 storey dwellings, others in above-ground dwellings with or without lifts; lower car-ownership and usage; more potential for close association with public transport routes.

Apportionment of residential density categories

130. Decisions on the proportions of each category to be assumed at particular points in the period of planned expansion are difficult to substantiate. The reasons why the demand for a particular housing form evolves are extremely complex and involve considerations of employment structure, income group, sensitivity to environment, status and a number of other aspects which are only vaguely understood and which cannot be quantified at this early stage.

131. Even so, although there is no refined data available, there would seem to be a widespread preference for ground level dwellings with garden space. Equally there seems to be an unmistakable desire to have the convenience of cars for many purposes of movement. These two factors together have led us to assume that the solid base of residential accommodation should be in the medium density range. This is a reflection of a demand for a way of life, and we think it is realistic to face up to all the spatial implications which are involved. We have not in other words seen any serious case for choosing a high overall residential density involving large numbers of people being concentrated in extremely compact two- and three-storey buildings or in flats—there may be valid reasons for such development in certain parts of large existing cities, but to insist on high densities in a new development of the kind under discussion would, we believe, be contrary to the drift of public choice. Apart from the crucial point of public choice, the overall saving of land which results from higher net residential densities is marginal, and there are reasons for believing that overall building costs are usually greater. Whilst we have seen the bulk of the housing as being in the medium density range, we think two trends would set in with the passage of time. First, with the rise of incomes and consequent demand for more spacious standards, there would be a tendency towards a greater demand for housing in the lower density range. Secondly, for reasons discussed later, we would expect a simultaneous increase of demand for housing in the higher density range.

132. Another consideration which has influenced us in allowing what may seem at first sight to be a high proportion of lower density housing is our view that the traditional new town image of public authority housing is not relevant to the potential situation in this "second generation new town". We feel strongly that every opportunity of encouraging the widest possible cross section of society to live in it must be fully exploited. The size of the projected population would make it both possible and very important to encourage the widest variety. So far new towns have not had the hoped for success in attracting people in higher income groups. We think a wide range of lower density housing could attract these groups; success in this would benefit the social structure of the city itself and be a positive measure in tempering the inevitable pressure on surrounding villages.

133. As a proportion of the total population, the group who prefer to live in higher density development would be likely to be very small in the early years of the city's growth. As we said in paragraph 131, however, we think the proportion would be likely to increase in time. As the second generation grows up there would be an increasing tendency for the younger members of households to leave the family home and find accommodation of their own. The number of older people in the city would also increase. These considerations would mean an increasing demand for smaller dwellings conveniently near shops and other facilities which would be likely to lead to higher densities.

134. On the basis of these considerations we assumed, for the purposes of calculation, that the proportions of the 1991 population in the three density categories might be as follows:

Lower density	25%
Medium density	67%
Higher density	8%

135. We would emphasise that these considerations with regard to density are for the purpose of making an estimate of land needs. Underlying our considerations has been the thought that it is neither possible nor desirable to dictate the living standards of future generations, least of all by taking decisions now which would amount to a once-and-for-all committal to high density living. The figures we have assumed would, we believe, allow fair scope for the accommodation of developing tastes and desires.

Table 5

Summary of Demand for new housing in the Designation Area: 1966-1991 (High Population Estimate) (000s)

HOUSING DEMAND		
Total population (1991)		241·4
Thus population in households (96·6%)		232·9
Less population continuing to live in housing already built in 1966		28·6
Thus population requiring new housing		204·3
Less population to be accommodated on redeveloped sites in existing Ashford		2·9
Thus population requiring new housing on new sites		201·4
Less population to be housed in existing Ashford, 1966-71		9·8
Thus population to be housed on new sites elsewhere, 1971-1991		191·6
Add equivalent population for 3% vacancy allowance		5·7
Thus equivalent population requiring housing on new sites		197·3
APPORTIONMENT OF DEMAND		
Equivalent population in new centres		3·1
Equivalent population on new sites elsewhere		
25% at lower density	48·6	
67% at medium density	130·1	
8% at higher density	15·5	
		194·2
	Total	197·3

AREA REQUIRED FOR NEW HOUSING SITES 1971-1991 (excluding existing Ashford and centres)—net residential acres	
48,600 people 22·5 ppa (Average lower density)	2,160
130,100 people at 40 ppa (Average medium density)	3,260
15,500 people at 70 ppa (Average higher density)	220
Total net residential area	5,640 acres

Residential land needed

136. To calculate the net residential acreage required we assumed that the lower density range would average 22.5 people per acre, the medium range 40.0 people per acre and the higher density range 70.0 people per acre. Table 5 expresses acreage demand in terms of these net residential densities. For our purposes it

will be more useful to talk from now on in terms of *gross* residential area, that is an area which includes allowance for those facilities which are normally thought of as being ancillary to residential development, such as schools, local shops, churches, pubs and so on.

137. In estimating the amount of land required for such uses we have particularly borne in mind the growing needs for space for education, recreation, and welfare and health. In addition to allowances for education (1,000 acres) and light manufacturing industry (110 acres), the following uses were considered: local open space (including children's play areas and allotments), churches, petrol filling stations and service garages, children's and old people's homes, community and youth clubs, shops and similar uses, hostels, public authority buildings and health and welfare services (1,730 acres).

138. The total amount of land assumed for these ancillary facilities is therefore 2,840 acres or about 15 acres per 1,000 people. These facilities would not in practice be spread evenly throughout the density ranges, but for statistical purposes this even spread has been assumed. The final result is that the gross residential land requirement (including ancillary facilities) would be: for the lower density range about 2,870 acres; for the medium density range about 5,160 acres; and for the higher density range about 450 acres—a grand total of approximately 8,480 acres.

CENTRES

Pattern of centres envisaged

The city centre

139. A city population of the size we have been discussing would obviously require considerable central area facilities. Should expansion go ahead, even at a rate of growth slower than that suggested in our Terms of Reference, it is likely that towards the end of the period of planned expansion, the new city centre would become the most powerful retailing and commercial complex in East Kent, and it would consequently develop a dual role as city centre and sub-regional centre.

Secondary facilities

140. While the city centre would undoubtedly be the principal shopping and commercial magnet for the population of the new city, many of their demands would be more conveniently catered for by secondary centres more closely related to the housing areas. These secondary centres can be classified broadly into two types—district centres and local centres.

141. By district centre we mean something similar to the suburban centre of the traditional city or the large neighbourhood centre of the new towns. Normally we might think in terms of a number of such centres distributed fairly evenly within the city. However, the general trend towards the concentration of shopping facilities into larger centres which have a large enough catchment to attract and support a substantial range of retailing services, might lead to the establishment of one large district centre serving the part of the built-up area which is not adjacent to the city centre.

142. Whether or not this happened would depend to a large extent on the location of the city centre in relation to the bulk of the built-up area and the detailed dispositions of land uses and communications which can only be determined at Master Plan stage. For the purposes of designation it is sufficient to allow for the existence of such district facilities in our land need calculation and to ensure as far as possible that the area eventually chosen for designation allows either pattern to develop at a later stage. The estimated land need for these *district* facilities is about 110 acres.

143. The district facilities would be backed up by a number of small local centres which would be extremely reactive to local conditions and dependent on passing trade and short errand trips. Small groups would probably develop within the housing areas, at school clusters, sports centres and industrial areas. The total acreage required for these local centres would be small, and allowance for this has been made under other land use headings.

144. A hierarchy of facilities therefore emerges—the city and sub-regional centre, the district centre(s) and the local centres. By far the biggest land user is the city/sub-regional centre, and it is the form and size this of which we must now examine.

The form of the city centre

145. It is impossible to assess the land needed and cost of the city centre without making some broad assumptions as to its form. At one extreme, we could envisage a highly concentrated structure similar to a New York skyscraper where all uses, including parking, are stacked one above the other and where the net land need would only be a few acres. At the other extreme, we could assume a system in which all land uses, again including parking, were located on one level; or even a system where central area facilities were dispersed throughout the city at transport nodes and there was no centre as such.

146. After considering in some detail the advantages and disadvantages of a number of such postulations, we concluded that the most advantageous form would comprise a single complex with fairly clearly differentiated internal zones for the separate purposes of shopping, offices and services, and entertainment and culture. The shopping would probably be provided in single and two-storey building form, but offices and other uses would vary considerably in height. We further assumed multi-storey parking structures. Should some form other than this be preferred at a later stage, we are of the opinion that there would be sufficient flexibility in a Designation Area of the size envisaged to allow for the change to be made without affecting the overall size and shape of that Area.

The size of the city centre

147. We examined the possible size of the centre by calculating the approximate floor space requirements of the various uses. In converting these to acreages we allowed for amenity space, growth reservations, parking and vehicular circulation, and for the substantial amount of space which would be needed to ensure adequate vehicular access from the main road network.

Shopping

148. In addition to having a strong local catchment within the new development

and the adjacent countryside, the new centre could attract custom from five definable areas in Kent—the Medway towns, Maidstone and mid-Kent, Canterbury and Thanet, the Channel Ports, and the Romney Marsh—Sussex border area. All the existing centres in these five areas suffer in some degree from the problems of traffic congestion and the pressures for expansion and redevelopment within confined and inadequate structures—problems which would not be encountered in the new city centre. This factor, combined with the potential attraction of its facilities, would influence shoppers to come to the new centre.

149. We estimated the population increases which might be experienced in these five areas by 1991 end the spending capacity of both these increased populations and the new city population. We then estimated the percentage of their combined spending capacity which might be spent in the new centre, and related this to an average turnover of £30 per square foot of gross shopping space which might be expected in a centre of this nature.

150. The result of these calculations indicated that the necessary retailing floor space at 1991 would be in the region of 1.5-2.0 million square feet, including storage space. We then checked these estimates with conditions in a number of existing centres of comparable size and function and with a number of more recently planned centres principally in the new towns. These checks largely substantiated our estimates.

Offices

151. These can be sub-divided into four groups. These are general offices, local administrative offices, service offices and large "footloose" offices. A study of the first three, based on estimates of the percentages of the labour force which might be employed in those groups, indicated a possible need for about 300,000 square feet of small service offices integrated with the shopping zone, and a separate zone for general and administrative offices of approximately 1.5 million square feet.

152. The fourth group—large "footloose" offices, which would be imported to rather than generated by the city—is the most difficult category to forecast. The number and size of such offices which might eventually be located in the new city would depend on a number of factors such as the amount of office work "overspilled" from London, and the effect of the Channel Tunnel. Depending on these factors, the labour force might range between 3,000 and 7,000 people (including an allowance for national government offices) giving a possible maximum of about 1.0 million square feet. Some of these offices might look for so-called "parkland" sites and might not be completely integrated with the city centre complex, but for present purposes we have included them within the main centre.

Entertainment and cultural facilities

153. The requirements of this category cannot be assessed in any detail at this stage. We have allowed in our open space calculations for some elements of entertainment and sport. The remaining elements associated with the centre could be adequately accommodated within a land reservation of about 30 acres.

Parking and circulation requirements

154. We then estimated the number of parking spaces which would be required for visitors' cars. This was done by estimating the number of car trips per week which might be made by both the city and the sub-regional population. These figures were translated into the number of cars for which parking space would be

required on a peak weekday and on a Saturday. We assumed an average parking duration for each car, and then estimated the peak demand for parking spaces. With regard to employees, we estimated the number of spaces required by making assumptions as to the percentage of employees who might travel to work in the centre by car and the average number of persons per vehicle. (These parking estimates are shown in Table 6.)

Table 6

Centres—estimate of parking requirements for visitors and employees

Visitors:

	Total Trips/week	*%age of trips in day*	*No. in day*	*Average time parked (hr)*	(1) *Average parking demand (car spaces)*	(2) *Peak demand (car spaces)*
Peak Weekday						
Sub-Region	36,200	20%	7,600	3	2,500	5,000
City	57,500	25%	14,400	1½	2,400	4,800
					Total	9,800
Saturday (3)						
Sub-Region	38,200	40%	15,300	3	5,100	10,000
City	57,500	35%	20,100	1½	3,400	6,800
					Total	17,000

(1) Average over 9 hour shopping day

(2) Peaking factor of 2·00 assumed

(3) Assuming all day shopping on Saturday

Employees:

DAY	*No. working in Central Area*	*% age by car*	*Occupancy (persons/vehicle)*	*No. of parking spaces required*
Weekday	24,000	70%	1·3	12,900
Saturday	12,000	70%	1·3	6,500

Total Requirement:

Peak Weekday	Shopping: 9,800	Work: 12,900	Total: 22,700
Saturday	Shopping: 17,000	Work: 6,500	Total: 23,500

155. These calculations indicated that on a peak weekday 9,800 spaces for visitors and 12,900 spaces for employees (a total of 22,700) might be required. On a Saturday visitors might require about 17,000 spaces and workers about 6,500 (a total of 23,500). If these 23,500 spaces were to be accommodated at one level some 132 acres would be needed. However, as we mentioned in the discussion on the form of the centre, we have assumed some form of multi-storey solution which would reduce the acreage requirement to about 40.

156. We then examined possible forms of parking and circulation for commercial vehicles. We assumed an average peak generation of commercial vehicles in relation to building floor space, which indicated the possible number of vehicles calling at the centre each hour. Allowing for the turnover of vehicles in relation to parking spaces, the calculations indicated that the required number of commercial parking spaces would be in the region of 3,000. Making an additional allowance for the circulation of these vehicles, the total space necessary for commercial vehicles would be approximately 100 acres.

157. Lastly we made some rough assessments of the very substantial access arrangements which would be necessary to ensure the smooth flow of traffic between the centre and the adjacent highway network. This was based on trial layouts which indicated a possible requirement of some 140 acres.

Summary of city centre land need

158. Table 7 shows the estimated needs of the various uses in terms of floor space, parking spaces and acreage. Our conclusion is that the centre complex would have a total land need of about 440 acres.

159. One further important point would require additional examination at a later stage. In what has been assumed at this stage to be a largely car-based centre, the cost and sheer physical complexity of the vehicular access arrangements could, when designed in detail, impose an upper limit on the size of the centre. The brief investigation of this aspect which we have been able to carry out in this study leads us to believe that the size of centre we have outlined is feasible. Should this be proved wrong we believe that priority should be given to the sub-regional functions of the centre and that some of the city functions could effectively be absorbed into the district centre(s). The important thing at this stage is that we are certain that an adequate total acreage for "central area facilities" has been allowed for.

Table 7

Centres—estimated floor space and acreage requirements of principal uses

Use	*Floorspace (million sq. ft.)*	*Approx. Plot Ratio*	*Acreage*	*Total Acreage*
Shopping Zone				
Shopping (incl. storage)	1·5–2·0	1 : 1		50
Offices	0·3			
Office Zone				
General and administrative	1·5	2 : 1	17	
"Footloose"	0·5–1·0	1 : 1	23	40
Entertainment and Cultural Zone				
Buildings	0·6	0·5 : 1		30
Amenity and Growth				40
Car parking and circulation, 23,500 spaces, multi-storey				40
Commercial vehicle parking and circulation, 3,000 spaces, one level				100
Access to centre complex				140
Grand Total				440

The relation of the pattern of centres to Ashford town

160. The first strategy we examined in relation to the actual location of the city sub-regional centre was the expansion of the existing centre of Ashford town

so that it could fulfil that function. To do this adequately the centre would have to have space to grow to something like 440 acres in size and space would have to be found for major roads through the existing built-up area; this would have to be done within 20 years of the inception of the scheme.

161. An appraisal of the physical structure of the town centre and its environs was undertaken to see whether, in our opinion, the existing centre could be expanded to accommodate growth on this scale. (See Foldout 5.)

162. Our conclusions were as follows:

i. Expansion to the *north* and *west* would necessitate the demolition of housing stock which has a long life, creating social and relocational problems. Another major difficulty would be that high capacity roads could not be fitted in without causing further serious disruption.
ii. Expansion to the *east* would be seriously impeded by the Secondary Schools, the flood lands of the River Stour and further good housing areas.
iii. Expansion to the *south* and *south-east*, although difficult, would be the only direction which could be seriously contemplated.

163. If the existing railway land to the east of the Stour were to be released and developed to form one of the zones of the whole centre, possibly the office zone, then a line of growth could be exploited to the south-east. This seems to us to be the only real possibility, and it has two important points in its favour:

i. The existing railway station, on the only stretch of line to give access in all possible directions without further construction, could be used for incoming work journeys, and could prove attractive to office developers, many of whom would value the fast link with London.
ii. The new office development could be grafted on to the existing shopping centre, which could function as a shopping-restaurant-entertainment area for office workers without prejudicing the growth of a larger shopping area further to the south.

164. These advantages must be weighed against the following disadvantages:

i. The provision of the necessary roads and parking places in a rational manner would be very difficult (on account of the railways, for example) and would cause disruption throughout the town even if road lines could be found along the Stour Valley. Unless good road access could be provided, the office complex would have to rely to a very high degree on workers using public transport, and this would be a questionable assumption when dealing with a highly mobile, car-based population.
ii. The shape of the area and the presence of many buildings which would probably have to be retained would place considerable restraints on the layout of the new development.
iii. The problems of rapid acquisition and demolition in the area would be formidable, and the consequential relocation, disturbance and upheaval would put an extra burden on the authorities and local inhabitants.

165. On first appreciation, then, it would seem that the expansion of the existing centre to the size envisaged on its presently-defined site is virtually impossible, and that growth and development in a south-easterly direction with the railway station as the focal point of the new office node would be difficult. Nevertheless,

as we explain in the next chapter, this latter solution has to be retained at this stage until it can be fully evaluated against the alternative of development on a virgin site.

SOCIAL SERVICES

166. Among the social services only the education and hospital services require substantial sites and buildings; these are the only two we have attempted to quantify separately. It must be emphasised that we have not attempted to unravel the complications of phasing development, or the location of individual buildings. In what follows we have only been concerned to assess the land required by 1991 and to provide the information from which capital cost may be calculated.

167. The many other social and local government services such as health clinics, doctors' and dentists' surgeries, police, fire and ambulance services have been allowed for either in the estimation of gross housing acreages or in the central area acreage—whichever is more appropriate—since each would require only a small amount of land closely associated with housing, shops, or transport routes.

Land for primary and secondary education

168. The issues of when to change to a comprehensive system of education and which version of it to choose are as yet undecided in the County. We therefore estimated the land needed for new schools by 1991 for both the existing two-tier system and a theoretical comprehensive system with three tiers—primary, middle and senior schools. The total land required for school buildings was much the same in both cases; the comprehensive system required rather more land for playing fields which we have allowed for in the final acreage calculations and the capital cost estimate.

169. The time scale in planning a school building programme is such that it seems reasonable to assume that, with the improvements and additions already planned for existing primary and secondary schools in the Designation Area, the expected increase in the school age population by 1971 could be catered for. The calculation of land needed for new schools has therefore been based on the increase in the school age population between 1971 and 1991, assuming all children to be educated in state schools and the statutory school leaving age to be 17 throughout the period.

170. Table 8 shows the calculation of land need. We have, as far as possible, adopted the acreages laid down in Department of Education regulations; the acreage quoted for the middle school of the comprehensive system is an estimate. The "type of school" is, of course, *assumed* for the purpose of the calculation—in the event there would be considerable variety. Our conclusion is that some 1,000 acres should be allowed for primary and secondary education (say 370 acres for buildings; 592 acres for playing fields; 12 acres for special schools for handicapped children). This would allow either a two-tier system (similar to the present one) or a comprehensive system to operate efficiently and allow for some flexibility in dealing with awkward sites.

Table 8

The land needed for new primary and secondary schools in the Designation Area: 1971-1991: (High population estimate)

i. Under present system

Age Group	*Primary 5-11*	*Secondary 11+*	*Total*
Number of children to be catered for	33,900	23,900	57,800
Type of school	2 FE*	12 FE	—
Number of schools needed	61	12	73
Capacity of schools	34,200	24,900	59,100
Total area (acres)	381·25	480·00	861·25
of which playing fields	183·00	309·00	492·00
of which buildings	198·25	171·00	369·25

ii. Under a theoretical comprehensive system†

Age Group	*Primary*	*Secondary*		*Total*
		Middle	*Senior*	
	5-9	*9-13*	*13+*	
Number of children to be catered for	23,100	21,600	13,100	57,800
Type of school	2 FE	4 FE	12 FE	—
Number of schools needed	58	39	10	107
Capacity of schools	23,200	21,800	13,600	58,600
Total area (acres)	261·00	414·40	295·00	970·40
of which playing fields	101·50	292·50	197·50	591·50
of which buildings	159·50	121·90	97·50	378·90

iii. 3 special schools for handicapped children under each system: catering for a total of 600 children and occupying 12 acres (6 acres playing fields)

* Form Entry

† It is assumed for the purposes of this calculation that all the existing primary schools (5-11 years) would be adapted to the new primary schools (5-9 years) and that the existing secondary schools (11+) would be adapted to new senior schools (13+)

Location

171. The siting of individual schools is so closely linked with the layout and organisation of housing areas, with many other ancillary uses within residential districts, and with public transport routes that we have not attempted to distinguish locational requirements for individual sites. The total acreage is absorbed in the total area for housing *pro rata* to the population.

Land for further education

172. It appears from the County Planning Officer's Report (see Chapter 2) that the structure of Further Education facilities in East Kent is such that only the South Kent College of Technology and the relocated Art College would be likely to need land in the recommended Designation Area. Twenty-four acres are already available, but in view of the very large numbers of young people likely to be living in the new town, and the increasing importance of technical education, we have allowed as much land again for Further Education purposes. It is not possible to say whether this would be best located near the existing site or in relation to some other part of the new town; for the present we have assumed it to be in the main centre.

Hospitals

173. The South East Metropolitan Regional Hospital Board have announced their proposal to build a new District General Hospital, of either 639 or 999 beds, to serve the Ashford area (an area much larger than the Designation Area). The Board hopes to acquire a site just outside the present built-up area of Ashford

at Lacton Green, and to start building in 1972. A 999-bed hospital would enable them to meet the demands for hospital services from the new city's population for some years, but, during the 1980s, some further provision might become necessary. The Board estimate that a total of 54 acres would be sufficient for all needs. Questions of location would be considered at the stage of the Master Plan.

RECREATION

Introduction

174. The land required for outdoor recreation—almost all of which will be green space—is discussed in the following paragraphs. We have included, under this heading, open space for both local and city purposes, as we call them. Local open space, which would be located within housing areas, would contain such items as children's play areas, small parks, greenways and minor land uses such as tennis courts and bowling greens. City open space would comprise, essentially, the overall "green framework" in which the city is set, and would include the larger land uses, such as public and private playing fields, and the more informal open spaces such as parkland, woodland and river-side areas. We have not included in our calculations the small components (such as lunch time open spaces, or central area open space which are allowed for in the industrial and central area calculations) or school playing fields (these are directly related to schools and have been included with land needed for education).

Local open space requirements

175. For local open space we have assumed a standard of 4.0 acres per thousand population made up approximately as follows:

	acres/1,000 population	Basis
Small parks and gardens	1.0	The National Playing Fields Association standard
Children's play areas	0.5	Studies of provision in other new and expanded towns
Minor playing pitches, bowls, tennis	1.5	Studies of provision in other new and expanded towns
Other space—allotments, etc.	1.0	Studies of provision in other new and expanded towns
Total	4.0	

These standards are not intended to be fixed or rigid but have been used as a guide in order to determine the amount of land required.

The acreage allocated for local open space is not listed as a separate item in the Tables elsewhere in the Report but it is included in the gross housing area.

Playing field requirements

176. We have adopted a standard of 5 acres/1,000 population for public and private playing fields. This is based, primarily, on a recent Ministry of Housing and Local Government survey of playing field requirements in new towns* which concluded that 2-4 acres/1,000 population, depending on various physical

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*Open Space Survey. The Sociological Planning Research Unit. Ministry of Housing and Local Government. September 1966.

and ownership conditions, was a reasonable standard for public playing pitches for the major sports plus ancillary space. The survey also showed that land requirements for playing pitches would probably remain more or less stable. Floodlit pitches with hard, porous surfaces would be needed as well as grass pitches for most games. We adopted the higher figure of 4 acres/1,000 population for *public* playing fields and to this we added 1 acre/1,000 population for *private* playing fields to make the total of 5 acres/1,000 population. We assumed that 1.5 acres of this would be absorbed within local open space (see para. 175 above) to cope with the smaller land using elements, leaving 3.5 acres/1,000 population to be grouped in large units within the city open space system.

Major informal open space

177. The requirement of informal open space such as parkland is much more difficult to quantify since in existing communities this provision is usually related more to local conditions than to standards. Nevertheless, there is general agreement that outdoor recreation will absorb an increasing share of our time, resources and land, and that much of this demand will concentrate on informal rather than organised space. It is vital, in our view, that sufficient land should be allocated to this use to ensure that future generations have scope to meet their own needs.

178. In the present case, it is also important to note that the County Planning Officer's Report refers to the increasing pressure on coastal recreational facilities and on the roads leading to them. The provision of adequate city facilities would absorb some of the pressure which would otherwise be added to that already experienced in other parts of Kent. These considerations have led us to adopt, as a working assumption, a standard of 6 acres/1,000 population for major informal open space but, as we suggest in Chapter 4, this, of all standards, must be tempered by actual site conditions.

Total open space in the new city

179. Thus for total open space provision we have adopted a minimum standard of 13.5 acres/1,000 population which, when applied to the high population estimate, for 1991, results in the following requirements for the new population* within the Designation Area.

Table 9

Open space provision

New Population 1991	*Open Space Unit*	*Standard acres/1,000*	*Acres Required*	
195,900	Local open space	4·0	780	Included in gross residential area
195,900	City playing fields	3·5	690	1,890
	City informal open space	6·0	1,200	

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*New population is the difference between the 1991 population and the 1971 population. We have assumed that there is enough space zoned in the Town Map and associated with the area which will be built up by 1971 to allow for the future provision of open space for Ashford's population in 1971 to our suggested standards.

TRANSPORT

Introduction

180. There are two main aspects of transport which require examination at this stage. First, we have to consider the relationship of the new city to the form and function of the existing road and rail networks, and to existing proposals. Secondly, we have to consider very broadly the internal transport policy for the city and its relationship to the city's structure.

Existing and proposed transport facilities

Road

181. The main roads in Kent are generally overloaded, almost the only exception being M2 and the recently constructed sections of motorway on A20. Certainly in the Ashford area there is little spare capacity in the main road system which would be worth taking advantage of in locating a large new development.

182. The most important road in the Ashford area is A20 which connects London and Dover via Maidstone and Ashford. In 1965 unimproved lengths of this road were carrying between one and a half and two and a half times their theoretical traffic capacity. The improvement of this route to a high standard is already under investigation. It is the shortest route from London to the Channel ports and is likely to serve the Channel Tunnel terminal.

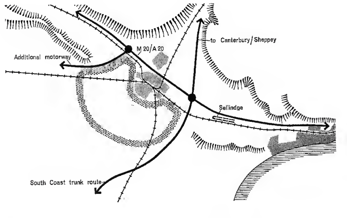
183. We examined the effect of a large population increase in the vicinity of Ashford upon the traffic flows on A20, and other roads in the area, to see whether the planned improvements to A20 would be sufficient to accommodate the traffic generated, or whether new regional roads would be required. Clearly if the proposed population increase meant that new links in the national highway network would have to be constructed, possible routes for these links would have to be kept in mind when locating the Designation Area.

184. The calculations we made indicated that on the roads radiating from Ashford the increase in traffic directly attributable to the population expansion could be about 130,000 passenger car units (pcu)/day by 1991, of which between 30,000 and 40,000 pcu/day would be on A20 north-west of Ashford. These calculations were necessarily approximate but they nevertheless indicated that the traffic generated by the new development, when added to that generated by the Channel Tunnel and the increase in traffic which would occur anyway, would by 1991 be more than enough to overload the dual three-lane M20/A20. This brief examination therefore broadly confirmed the conclusion reached in the County Planning Officer's Report that a third motorway might eventually be required.

185. If then there is the possibility that an additional motorway to cater for the extra traffic might be required by 1991—or even by the end of the century—we have to consider the implications of the possible routing of such a road for the site of the city. If, as is indicated diagrammatically in the County Planning Officer's Report, any new route were to be located on the Downs, then clearly this would have no immediate physical impact on the Study Area. Similarly, if a new route were to run closely parallel to M20/A20, its influence would be slight.

However, it seemed to us that a third possible route might eventually be found preferable—namely a route running westwards from the Ashford area south of the Greensand ridge and therefore affecting the Designation Area.

186. The other possible new highway which we had to consider when locating the Designation Area was the South Coast Trunk Route. Proposals have been made for linking up the South Coast towns between Bournemouth and Worthing with a major road, and we felt that we could not ignore the possibility that such a road might be extended, first to Brighton and Hastings, and thence to the Ashford area. It might there join M20 to feed the Channel ports and continue northwards to strengthen the links with Canterbury and Sheppey. We emphasise that neither this route nor any new motorway to the west is a proposal, but simply a recognition of possibilities which could have a bearing on the location of the Designation Area.



Rail

187. Five of Kent's railway lines meet at Ashford and give the town a high degree of accessibility by rail from the sub-region. The location of the recently modernised railway station, on the half mile of track common to all five lines, is important in this respect.

188. The two branch lines which serve Ashford (the Ashford—Canterbury—Ramsgate line and the Ashford—Appledore—Hastings line) do not at present carry much traffic—in fact the spur from Appledore to New Romney has already been closed to passenger traffic and a proposal to withdraw passenger services between Ashford and Ore is under consideration by the Minister of Transport. Although it is not possible, at this stage, to say how important rail transport might be in providing accessibility from the sub-region to a new city near Ashford, we feel that these lines could have a valuable contribution to make. Withdrawal of services may be unavoidable, but at least nothing should be done which would lead to the complete abandonment of these lines until the part they may play in the new situation can be evaluated.

189. The outstanding feature of the traffic pattern on the lines around Ashford is the number of people who travel daily to work in London. It is not that a particularly large number of commuters start from Ashford, but that trains pick up passengers as they approach London, and, for the last twenty or thirty miles of their journey, at peak times, are heavily loaded with numbers of standing passengers.

190. At present the proportion of people commuting to London in relation to the total local population of Ashford is about 1½%. If, while the new city were being developed, a policy of limiting the population expansion to that commensurate with the employment being made available were to be actively pursued (as our terms of reference indicated would be the case), this proportion would probably remain about the same; with a population increase at Ashford to a quarter of a million this could mean about 3,000-3,500 commuters travelling daily from Ashford to London.

191. Such a number of commuters could not be accommodated on either of the lines from Ashford to London with services as they are at present, but the number of travellers is not large in absolute terms and there does not seem to be any fundamental reason why the capacity of these lines could not eventually be increased by at least this amount. In the long-term, therefore, it seems reasonable to suppose that the situation does not present a problem. However, on these assumptions there could be an extra 550 London commuters by 1976 and a further 750 by 1981, giving a total increase by that date of about 1,300. This is the equivalent of between one and two train loads of seated passengers.

192. We understand from British Rail that re-organisation of timetables, re-signalling and electrification of the Hastings line (to allow closer spacing of trains north of Tonbridge) and other measures could provide the extra capacity required in the short-term, leaving more radical measures (such as the rationalisation of the London termini) to cater for longer term needs. It would appear therefore that measures now under examination would be sufficient to cater for any extra loads generated by the new city. Nevertheless, we would think that at Master Plan stage a review of the position would be required, in order to satisfy those concerned that improvements would in fact be in operation before the inevitable demand builds up.

193. It is essential to keep this question of commuting in perspective. The whole concept of development at Ashford is part of an overall policy of decentralisation of activity from London, and this concept should not be threatened solely on the grounds of possible commuting difficulties. Nevertheless, if the present conditions were not alleviated before expansion got under way this whole question could have a bearing on the process of implementation, by limiting the growth rate for instance, or by affecting the type of housing to be provided. This aspect is discussed in Chapter 6.

Air

194. Building height restrictions near, and aircraft noise emanating from, the two adjacent airports of Lympne and Lydd do not constitute constraints on development near Ashford, even taking into account any increase in air travel. It is difficult to say whether the new city would support an airport of its own for communication with the rest of the country and the Continent. If it did, it seems possible that Lydd could be enlarged to cater for this need, although road access to it should certainly be improved.

Transport policy

195. We have already said that we would expect a high level of car-ownership in the new city. High car-ownership obviously points to a demand for high car usage, so the question arises as to the role that public transport would play, or whether there would be any need for public transport at all. Two points arise in this connection. First, it is quite clear that, even in conditions of saturation of car ownership, there would still be an important sector of the public (the old, the young, the infirm, etc.) who would be virtually immobilised in the absence of some form of public transport system. Secondly, there are well known difficulties in designing a city centre (or indeed any other area of concentration of activity) so that everyone who so desires can use a car with complete freedom for virtually all movements. It is reasonable to assume that, in order to reap the benefits of a measure of compactness and economy in the design of the centre, and indeed of economy in the design of the circulation system as a whole, the public should be encouraged to use a public transport system for the movements where public transport has a chance of offering a service competitive in convenience with the private car. These movements are, of course, essentially those associated with concentrated centres.

196. Assuming, therefore, that a public transport system would be needed for good and sufficient reasons, the question arises as to its form. As far as rail transport is concerned, we concluded that although rail might have an important role to play in providing for movement to the new city from the rest of Kent, its potential for effective intra-city movement would be extremely limited. Tracked systems (and this applies to railways, monorails and many other, less conventional, forms of transport) require a degree of concentration of movement desire lines which would be unlikely to occur in a city of the size and overall density which we are considering.

197. There would be, on the other hand, every opportunity for developing an excellent road-based public transport system. Such a system, probably consisting mainly of buses, could be made fast and efficient on the extensive road network which would, in any case, be required. We considered whether roads might be provided exclusively for buses, but concluded that as far as the primary network was concerned, this would be unnecessary. Although in existing towns with inadequate roads there is often a case for reserving road space for public transport, there does not seem to be any reason why buses should not operate efficiently on an *adequate* road network even if they have to share road space with other vehicles.

198. The real opportunities for encouraging the use of public transport seem to us to lie in providing better conditions at the ends of journeys. The good design and layout of termini and interchange points, and the laying out of the buildings within environmental areas with public transport in mind could make the bus more attractive than the private car for many types of journey. It is at this level of consideration that the provision of access roads exclusively for the use of public transport might be found relevant. For instance, it may be that in order to keep the city centre compact, parking for private cars would only be provided on the periphery of the central area. There would still, however, be every reason for providing a public transport interchange within the centre, and this could well mean building roads intended exclusively for the use of public transport.

199. A good public transport system is an essential part of a city's operational equipment, just as necessary as a good water supply or drainage system. How the city might be designed in detail to make the best use of public transport is a question which in our view could be examined properly only at Master Plan stage. For the purposes of estimating the land requirements and cost of a traffic network for the city at this stage, we have assumed that there would be a bus system using shared road space and that 10% of work journeys would be made on foot, 70% by private and 20% by public transport.

Chapter 4: Forms of Expansion

INTRODUCTION

200. As a result of the considerations outlined in the previous chapters, it seems to us that the broad geographical location for the new city is not seriously in doubt—the bulk of development should be located to the south and west of Ashford town. The object of this chapter is to discuss how, within this broad geographical area, we might more closely define the area suitable for designation.

THE SCENIC DISCIPLINES OF THE SITE

201. We have taken it as axiomatic that everything possible should be done to reduce the visual impact of the new city on the rural landscape in this part of the "Garden of England". We have therefore taken great care to define a line beyond which the city should not impinge into the views from the surrounding countryside. Our main concern has been with the views from the Downs, Romney Marsh, and the high ground around Tenterden.

202. With this in mind we have excluded from development the ridge south-east of Ashford, on which the village and church of Aldington stand so prominently, although in the vicinity of Mersham the scenic boundary is less clear-cut. We have fixed the southern periphery as, approximately, the 150 foot contour. To the north the boundary is defined by Ashford town, the Godinton-Hothfield parkland (to be preserved as open space) and the foot of the Greensand ridge. Round Pluckley the south-facing slopes of the Greensand ridge would provide admirable housing sites but we would prefer to keep this high ground as the rural backdrop to views from the city.

203. The western flank of the area, however, is characterised by the lack of any easily defined topographical limitation to the built-up area. The strongest arguments for limitation here arise from the question of physical impact on the village of Smarden.

204. We should mention here that before deciding on the maximum extent of the built-up area as we have just described it, we considered another approach to the question of location—if a site in the Sellindge area were chosen as the Channel Tunnel terminal site, it could well attract a considerable growth of facilities such as motels, offices, warehouses, etc., in addition to the fairly modest railway operational needs and if such growth were substantial, it could invalidate the disciplines of agricultural significance and amenity to which we have attached such importance in our own Study.

205. Were the area round Sellindge to be compromised to some extent by the growth of terminal facilities, it could be argued that there might be advantages in locating the new city close to these facilities. They could then form one element of a large new industrial and transportation complex which could itself form an integral part of the city structure. We could not ignore the attraction of such a solution for some immigrant industries—the shortening of a proportion of city work-journeys, the establishment of a mutually beneficial close relationship between terminal and city centre.

206. Despite these considerations, we decided against this location for the city for the following reasons:

i. The terminal site might not, after all, be at Sellindge and it would be difficult to justify the choice of a Designation Area merely on the hypothesis that it might be.

ii. Even if the terminal were eventually located at Sellindge, normal planning control procedures could ensure that development would not be allowed to compromise the whole of the surrounding area.

iii. Because of the lack of any detailed knowledge of the needs and impact of the terminal, and to a lesser extent, of the city itself, there would be considerable advantage in allowing flexibility for both to evolve, grow and change independently, without one being physically constrained by the needs of the other.

iv. Vehicular accessibility between the terminal and the city could be assumed to be of such a high order that close physical contact would not be absolutely essential to achieve effective linkage.

METHOD OF STUDY

207. Having satisfied ourselves as to the *maximum* general extent of new development, we next investigated the possible locations of the major components of the city and their relationship to each other in order to determine how best this aree might be used. We must repeat that the results of this investigation do not constitute a Master Plan—our primary purpose is simply to define an area of land within which we can be confident that a successful Master Plan could be evolved at a later stage. In fact, we would suggest that one measure of the effectiveness of a Designation Area is that the Master Plan designer should find within the Area the flexibility to develop alternative detailed solutions without being unduly constrained by the location of the boundary within which he has to work.

208. More precisely, as briefly indicated in Chapter 1, the reasons for investigating the possible location of major land uses are:

i. To set out the reasoning behind the location and shape of the Designation Area.

ii. To examine the feasibility of satisfying the land requirements of each major component on suitable sites.

iii. To ease the task of evaluating the impect of the new development on both adjacent areas and the whole sub-region.

iv. To go some way towards identifying some of the major issues on which attention should be focused at Master Plan stage.

209. It is neither possible nor useful at this stage to determine the location of every component of the city. It is enough to concentrate on the four major land uses—centres, industry, housing and open space—and certain known factors such as public utilities. Of these, the locational demands of centres and industry—especially in terms of topography and accessibility—are more exacting than those of housing and open space, so we start by investigating the former group.

THE FOUR MAJOR LAND USES

Centres

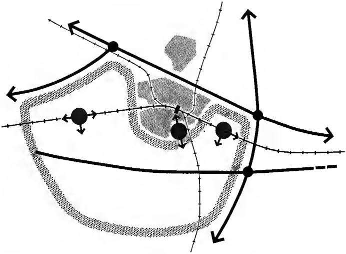
210. As described in Chapter 3, secondary "central area" facilities can be adequately ebsorbed into the broad category of housing and ancillary uses and they are dealt with under that heading. The main problem is to consider the location of the city/sub-regional centre.

211. The best location for the centre in its city role would be a site fairly central to the whole of the built-up area. In the role of sub-regional centre, the best location would be at the point of maximum accessibility to the sub-region. Our calculations suggested that most of the vehicular movements to end from the centre would originate within the city. This might indicate that the best location to meet city needs should have priority. Nevertheless, if the centre were to be embedded in the built-up area, the heavy peak day traffic flows originating in the sub-region would be forced on to the city road network to the consequent disadvantage of both local and sub-regional traffic. The two locational demands could therefore be said to be in conflict—the task is to find a location which reflects a balance of these demands.

212. To locate the centre in the northern part of the area would offer certain immediate advantages in this respect. Such a location would be well placed in relation to the main regional road and rail pattern, as outlined in the previous chapter. The centre could also be closely linked to the city road network, but still offer the possibility of disentangling city and sub-regional traffic.

213. Three sites within this northern area suggest themselves:

- i. A westerly location on the Tonbridge railway line on the flattish land in the vicinity of Hoad's Wood.
- ii. An intermediate location immediately south-east of Ashford town—an alternative discussed in the previous chapter.
- iii. An easterly location in the vicinity of Mersham.



Industry

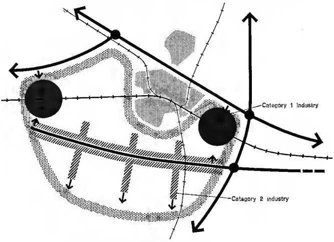
214. The advantages for traffic movement of achieving some measure of dispersal of industrial sites within a built-up area are well known. In addition, while it is appreciated that *all* industry demands good accessibility for employees, materials and finished products, it is possible in the case of the new city to define two separate broad categories of need:

i. Industry which has a large or constant demand for sub-regional, national and international linkage, or which gives rise to heavy industrial traffic—a hypothetical example might be some assembly industry which draws much of its materials from, say, the Midlands, utilises specialised services from many parts of Kent, and which is attracted by the exporting potential of the Channel Tunnel which therefore gives rise to regular flows of heavy industrial traffic by road and rail.

ii. Industry which is basically city-orientated—an equally hypothetical example might be a bakery employing a high proportion of local female labour and relying for movement purposes on a fleet of light vans.

215. The former category would have much the same locational demands as, say, the centre. The latter category could function successfully when linked more closely to the bulk of the housing. It is impossible to quantify these categories at this stage and we would not suggest a rigid direction of incoming industry to either type of location. It is sufficient to recognise that there would be demand for different types of location and that these should be allowed for.

216. These considerations suggest that there would be considerable advantages in locating the first category in the previously defined northern belt of the area where good flattish sites close to the main railway line and regional roads can be found, both to the east and west of Ashford town. The topography to the south of this belt is such that sites suitable for the second category could be easily found though their actual location would be conditioned by the disposition of the intra-city road network and the location of the residential areas.



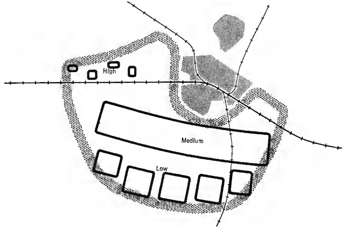
Housing and ancillary uses

217. We have noted that the locational demands of housing and open space tend to be less exacting than those of centres and industry which are so highly dependent on good accessibility. This is also largely true of those uses we have thought of as ancillary to housing and which we have grouped for statistical purposes under that heading—schools, some industries, churches, pubs, filling stations, minor open space, etc.

218. With the exception of the areas which actually flood there are no sites within the geographical area which could be classified as unsuitable for housing. The flat, and (as some people might think) uninteresting, land which characterises the Low Weald to the west of Smarden and Biddenden becomes more undulating to the east of these villages. This, combined with the presence of a large number of woodlands, produces a topography which has considerable potential for a good residential environment.

219. On the north-western and southern flanks of the area this topographical quality becomes even more pronounced, and it is on these flanks that some of the best sites for housing can be found, many of them framed by existing woodland. In broad terms, therefore, we conclude that the bulk of the medium-density housing should be located approximately along the broad central belt of the area and that the majority of the low-density housing could be most effectively located on the flanks, with particular reference to the southern and south easterly areas. The best locations (probably at specific points) for high-density housing would emerge with the evolution of the structural plan of the city. A likely location, associated with the northern belt, would be near Pluckley where high-density blocks with low site-coverage would make best use of the rolling park-like land round the eastern end of the Greensand ridge.

220. This broad deployment of the three categories of density is not intended as a rigid demarcation, but it makes good use of the site as a whole and would be a logical arrangement in relation to the intra-city traffic movement and to linkages with other uses.



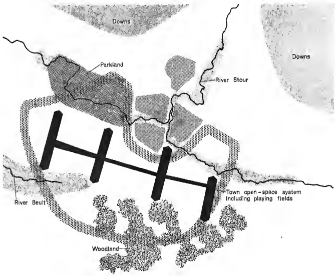
Open space

221. To aid consideration of the deployment of open space, three main categories may be distinguished:

i. Land which obviously suggests itself as informal recreational space—the river valleys, the woodlands, and the parklands round Godinton, Hothfield, and Surrenden Deering.

ii. Surface water balancing ponds, on the upper Beult, and gravel pits near Ashford which could possibly be developed for water sports.

iii. Land which is suitable for recreational purposes on account of its convenient relationship to other uses. Generally speaking, almost any part of the area could be developed for playing fields—it is convenience to other uses which is the determining factor rather than topography.



ALTERNATIVE CITY STRUCTURES

222. The locational relationships between these four main land uses could be expressed in innumerable ways. However, as we have said, our purpose is not to demonstrate all the various permutations, but to investigate the way in which they could most directly affect the location and shape of the Designation Area. To clarify this procedure we evolved six alternative city structures for the purposes of evaluation. Between them they embody all the considerations effecting the location of the four main land uses. Four of these alternative structures are illustrated diagrammatically on Foldouts 6, 7, 8 and 9. In order to avoid repetition of information the remaining two are not illustrated. (see para. 224 below)

223. In order to find the most effective shape for the Designation Area within the topographical boundaries we have described, we intentionally expressed the alternative structures in extreme terms. Three of the alternatives (Foldouts 6, 7 and 8) are based upon a maximum dimension on the north-south axis—i.e. they coincide with the topographical boundaries already defined on the northern end southern flanks. The other three alternatives (exemplified by Foldout 9) utilise what could be called a minimum north-south dimension—i.e. they are as narrow as seems reasonable in practice. The first set can simply be called the square structure and the second the long structure.

224. The internal disposition of components within each shape illustrates the alternatives previously discussed. Foldout 6, for example, shows the westerly location for the centre within the square structure; Foldout 7 the intermediate location within the square structure; Foldout 8 the easterly location within the square structure; and Foldout 9 (as an example) the intermediate location within the long structure. The dispositions of industry, housing and open space are similarly illustrated.

225. A main road network consisting of a simple grid of primary and district distributor roads was postulated for each structure. The networks are not illustrated in any degree of detail on Foldouts 6-9; the few highways that are indicated represent, in diagrammatic form, the kind of skeletal system of major primary routes which might be required. The networks were basically similar in order to facilitate comparison of each structure, but they have been varied to reflect, as efficiently as possible, the different shapes and land use dispositions of each structure. We wish to emphesise that the layouts shown on Foldouts 6-9 are necessarily highly diagrammatic. They should not be taken as indicating any intention to superimpose a rigid rectangular grid of highways across the area. In practice the actual location of the roads would be adjusted in numerous ways to take account of topography, landscape, woodlands, rivers, and other natural and man-made features.

EVALUATION

226. We evaluated the effectiveness of these structures by comparing the performance of the components within each structure, both individually and collectively. In most cases the results of our evaluation only affected the merits of alternative dispositions of components *within* a particular overall shape. The factors which actually affected the choice between alternative overall shapes were few, but they were nevertheless conclusive.

227. First we had no doubt that the square structures most effectively utilised what we had previously defined es the most desirable housing sites, principally on the north-western and southern flanks of the area. Secondly, we felt that the inclusion of both the north-western parkland and the woodlands on the south as elements in the open space system would be of great advantage. A third, though possibly lesser, advantage of the square structures was that they kept development further away from Smarden and the other villages to the west.

228. Lastly, our calculations of the amount of movement on the postulated networks satisfied us that the square structures gave rise to less movement and were therefore more efficient. The investigation was based on work journeys as an indicator of total movement. These journeys were converted to traffic flows which were assigned to the postulated network so that the size of each road could be calculated. This calculation in turn provided the basis for an estimate of the cost of the network (included in Appendix 6). Although this process showed up a number of inadequacies in the postulated networks which would have to be corrected at Master Plan stage, it was sufficient to satisfy us as to the general feasibility of providing a road system for a reasonably high level of car usage in a new city of this size.

229. The long structures did have marginal advantages with regard to some Forestry Commission and Nature Conservancy interests but we considered these advantages to be completely offset by the considerations we have just outlined. We comment further on the question of the impact of the new city on these particular interests in Chapter 5.

230. The evaluation led to preferences on our part for certain of the dispositions of components, but we do not regard this as being relevant to the question of designation. What is more important is that the alternative dispositions within the square structure were all found to operate effectively. We can therefore say that not only did we find that the square structures more effectively reflect the overall objectives of the Study, but that the characteristics of the square shape are such that there should be considerable flexibility for detailed decision at Master Plan stage.

FURTHER GROWTH OF THE CITY

231. Our terms of reference required us to bear in mind the possible growth of the city beyond the size for which the Designation Area is designed. There can be no doubt that should a city of approximately a quarter of a million people be established, its continued natural growth could be substantial.

232. Future generations may not accept the criteria affecting location which we have used. It may be that towards the end of the century circumstances will have so changed that these disciplines are no longer entirely relevant. At this stage, however, we would think that the obvious direction for growth would be westwards. From the point of view of both the topography of the area and the characteristics of the urban structure we have postulated, this would have advantages over other possibilities.

233. By that time, however, not only would the site of the Channel Tunnel terminal be known, but it would probably have been in operation for many years and its impact gauged. This might suggest that an alternative or complementary direction of growth could be eastwards, resulting in a strong linear complex of Folkestone, Hythe and new Ashford. All that concerns us here, however, is that we have recommended a Designation Area which is capable of rational and ordered extension.

THE DESIGNATION AREA

234. Using, as a basis, the total acreage requirements of the city (as detailed in the various sections of Chapter 3) and the configuration of the square structures, we produced a first draft Designation Area. In refining this draft to produce the final Designation Area, we had to consider two points—the need for flexibility and the relationship of Ashford town to the Designation Area.

235. It must be recognised that the calculated acreage requirements of the city and its parts can be looked upon only as guidelines. If a city could be laid out like a chess board, with each individual square interlocking perfectly with the others, then 100% land utilisation could be achieved. The reality, of course, is entirely different. The bend of a stream, the ragged outline of a wood, the sudden

steepening of a field—these all produce refinements and nuances of layout as the city adapts itself to its site. So, even if the statisticel predictions were unexpectedly found to be completely correct, it would be most unlikely that all requirements could be satisfied within a boundary line tightly enclosing the calculated area. Therefore, even at this stage, the desire to designate as little land as possible cannot be allowed to override the need to relate the boundary as carefully as possible to the topography of the site.

236. This is particularly true of informal open space, for which no standard of provision exists. The standards we discussed in Chapter 3 are really no more than desirable minima. When we studied the area in detail, it was obvious that there was a good deal of land which would clearly be better used for open space than for enything else although its inclusion would raise the provision of open space to a level in excess of the minima. Yet, on account of the location of the various pieces, it could not be readily excluded. Nor did we wish to exclude it, because it is elements of this nature which help to give a city a character of its own.

237. The question whether the Ashford Urban District should be included within the Designation Area is in many ways a policy decision for the relevant authorities. Nevertheless, it seems to us that the balance of advantage would favour its inclusion for the following reasons:

i. If Ashford UDC were to be *excluded* but were to continue the present Town Development Act arrangements, the situation would arise of two independent agencies—the Development Corporation and the UDC—both attempting to do similar jobs under entirely different administrative procedures. The potential for confusion, and possibly conflict, would be considerable.

ii. If Ashford UDC were to be *included,* the greater financial and professional resources which the Development Corporation could muster could have a beneficial effect for the existing community.

iii. Unless Ashford UDC is *included,* the task of integrating the physical and socio-economic development of the two communities would, with the best will in the world, be extremely difficult. The planning, organisation and implementation of what must be a joint venture would be immeasurably eased if it were to develop within a single administrative framework.

238. There is, however, one complication which we do not feel competent to deal with. We are certain that the built-up area of the city should not extend north of the line of M20/A20. Thus, from the technical point of view, there would be no advantage in the Designation Area extending north of that line to include Kennington and the undeveloped land within the UDC boundary. However, if the boundary of the Designation Area were to coincide with the M20/A20 line, the southern half of the UDC area would be designated and the northern half would be excluded. From the administrative point of view this might be unacceptable.

239. In illustrating the recommended Designation Area on Foldout 10, we have therefore shown two alternative boundary lines in the north—Line A coinciding with the M20/A20 line, and Line B including the whole of the UDC area. Our statistical material is related throughout the report to Line B. If Line A were chosen, there would be 23,602 acres within the Designation Area, and its 1991 population would be 235,000. If Line B were chosen, the equivalent figures would be 25,647 acres and 241,000 people. The detailed breakdown of land use acreages within the alternative Designation Areas is given in Table 10.

Table 10
Land uses within the Designation Area

	Individual Acreage	*Combined Acreage*	*Total Acreage*
PART I: FUTURE LAND NEEDS (1971-91)			
1 Housing			
a. Lower Density	2,870		
b. Medium Density	5,160		
c. Higher Density	450	8,480	
2 Industrial Estates	–	1,100	
3 Centres			
a. City/Sub-regional centre	440		
b. Secondary facilities	110	550	
4 Open Space/Recreation			
a. Playing fields	690		
b. Informal open space	1,200		
c. Buffer strips (boundary)	120	2,010	
5 Major Roads (including landscaping and buffer strips)			
a. Primary roads	2,600		
b. Secondary roads	600	3,200	
6 Public Utilities			
a. Electricity, gas, GPO, etc.	60		
b. Reservoirs, balancing lakes	225	285	15,626
PART II: EXISTING LAND USES TO BE RETAINED			
1 Parkland, woodland		2,900	
2 Railways (including an allowance for buffer strips)		500	
3 Existing villages (including an allowance for minor associated open space and existing scattered development)		830	
4 Mineral workings		85	
5 Land liable to flood		110	
6 Ashford UDC			
a. part of UDC south of M20/A20 line	2,830		
b. part of UDC north of M20/A20 line	2,045	4,875	
7 Adjustment to physical boundaries		722	10,022
Designation Area (Part I+Part II)			25,647

Note: If line 'A' were to be adopted (i.e. excluding item 6b of Part II) the Designation Area would total 23,602 acres.

Chapter 5:
Implications of Development—Local Impact, Phasing and Cost

INTRODUCTION

240. The implications of the new development for adjacent areas formed part of the evaluation discussed in the previous chapter. In this chapter we pursue the question in greater detail since from many points of view the effect of the new city on its surroundings will be one of the principal measures of its acceptebility.

241. Impact of this nature can be considered at two scales—the national and sub-regional, and the local. To discuss the first would be outside the scope of this report since it raises questions which are essentielly for the Government and Kent County Council to deal with. At the *local scale* we can think first of the impact on interests within the Designation Area and secondly on those immediately adjacent to it. In so far as these questions can be dealt with at this stage, we have tried to avoid undue physical and socio-economic disruption of local interests, while at the same time keeping in mind the interests of those who will live in the new city—the only people who have no opportunity to make their opinions directly known.

IMPACT INSIDE THE DESIGNATION AREA

Ashford town

242. It is not part of our brief to prepare a new plan for Ashford town—indeed the possible physical impact on the existing community is almost impossible to determine before Master Plan stage is reached. Apart from a possibly accelerated rate of redevelopment, the principal repercussion would be the introduction of an improved highway network linking to the new city. Otherwise nothing emanates from the choice of the Designation Area which in itself would lead to any disruptive effect on the physical structure of the town.

243. The growth of the new city would in fact present many opportunities for drawing off pressure from the existing town—pressure for redevelopment arising from increasing population, increasing affluence, increasing cer-ownership and usage, increasing demands of all kinds. It is this kind of pressure which in most of our towns leeds to expensive and often futile attempts to adapt the town's fabric which evolved long before the car and the supermarket were dreamed of. Ashford town could benefit considerably from the development of the fecilities which the new city could offer, without itself suffering from the disruptive effects which their development inside the town would entail.

244. This would not mean that the town would be left to stagnate, or become, at best, a second-rate satellite to the new city. We have always thought in terms of the old and the new developing together, in a manner fitted to the different scales and functions which characterise them. In every way the town would be an integral part of the total structure—a part which would be unique and identifiable but which is nevertheless one of a number of parts.

245. In this context we have assumed that the existing Town Map of Ashford would be reconsidered in the light of the entirely new situation with which this report deals—certainly at Master Plan stage, and possibly before. There are however two points which we think merit immediate attention—the present proposals for the comprehensive redevelopment of the Hempsted Street area and for the location of new housing at Godinton.

Hempsted Street

246. Irrespective of the eventual decision as to the location and form of a new city centre (and we have so far only established that the latter cannot be a simple expansion of Ashford's existing centre), the future role of the existing centre must be considered.

247. The present shopping centre performs only a minor role for shopping purposes in relation to East Kent. Its catchment area extends over Wye and the sparsely populated rural areas to the east, north and west and reaches across Romney Marsh to the coast. Together with Ashford's population of 35,000 the total population served by the centre is about 55,000. The comparatively small out-town catchment area of Ashford stems from the more powerful attraction of Canterbury and Maidstone and to a lesser extent Folkestone. Each of these towns exerts a strong shopping influence on the residents of Ashford town itself.

248. The present proposal for the extension of the existing shopping area by comprehensive development in the Hempsted Street area was based on the assumption that extra space would be required to serve the additional population coming to the town under the Town Development Act (TDA) overspill programme. Within the town's catchment area the population is expected to rise eventually to about 80,000. Clearly an entirely new situation arises when we consider expansion to around a quarter of a million people with natural growth beyond that figure and the probability of the subsequent growth of a large new centre to serve the city and sub-region.

249. We are aware of the past history of the Hempsted Street Comprehensive Development Area project and the strong local feeling which it engenders. We have no brief to comment on these proposals except in so far as they may affect the question of designation. In this latter context it may be useful to highlight a number of aspects.

250. Firstly, it must be assumed that, should it be decided to build a new city, the present proposals for the location of new housing for people coming under the TDA scheme would be re-assessed, and that even if the proposed locations on the outskirts of the town were to be confirmed, many of the new tenants would be attracted away from the old centre as a new one with greater facilities and accessibility became established. Similarly, the great majority of out-town shoppers could be expected, in time, to transfer their allegiance to a new centre.

251. It seems to us, on the basis of the brief examination we have been able to carry out, that *in the long term* the additional facilities now being contemplated in the Comprehensive Development Area would probably not be required, and that careful rationalisation and small-scale redevelopment of the existing centre would be adequate to cope with the expected needs of the immediate town population.

252. However, the question still remains of the possible *short-term* benefits which could accrue from the completion of the Hempsted Street proposals. The answer to this question is related largely to the phasing of new development, both in Hempsted Street and the new city centre. If Hempsted Street were to go ahead it could be in operation by, say, 1971. If, as we would recommend, the new city centre were to be commenced quickly, at least the equivalent of the Hempsted Street facilities (and possibly more) could be in operation in the new centre by about 1975.

253. The advantages of pressing ahead with Hempsted Street might therefore be:

i. Short-term relief to the *present* demand in Ashford although we must admit to not being entirely convinced that this need actually exists to the extent of necessitating a completely new development.
ii. The creation of additional capacity to meet the demands of immigrants to the new city in the early years of the planned expansion scheme, before the new centre becomes established.

254. The disadvantages of immediate development of Hempsted Street are:

i. The very real danger that it would divert commercial resources which might otherwise be used in building up the new city centre. The completion of the Hempsted Street scheme could seriously delay the latter and thereby affect the evolution of the whole strategy of the sub-regional shopping pattern.
ii. It is certainly possible that shopping facilities in Ashford town could eventually be over-provided in relation to the amount of trade available and could founder in competition with the city centre.
iii. It is possible that insufficient attention has been paid to the fact that the development of Hempsted Street could throw considerable extra traffic volumes on to the already over-loaded road network of the town.

255. If the Hempsted Street project were to be abandoned we would suggest that residential development (with possibly a few shops) could take its place. This sort of development, so close to the central area facilities, public transport routes and so on, would be likely to be attractive to many people and could aid the continued success and economic viability of the present centre.

256. These observations are based on the limited amount of evidence which we were able to study. The right time to decide upon the question of Hempsted Street is at Master Plan stage, and we would suggest that there would be benefit in delaying further action on this question until that stage is reached. Then, of course, the immediate question is "When will the Master Plan be completed—and, indeed, will there be one?". If it is felt that a decision cannot await the Master Plan, then we would suggest that, in the event of the area being designated, a quick probe study of the position (in the light of the entirely new situation which the idea of the new city gives rise to) could be made in advance of the Master Plan.

Godinton

257. We have assumed that the present TDA housing programme would continue at least until such time as the first new city dwellings were to become available, probably by 1971. By that time a good deal of the TDA programme would have been completed, but we think that, before that stage is reached, the abandonment of the present proposals for one very important housing site—Godinton Park—should be considered. Our reasons are as follows:

i. We are convinced that the best use for this land is as permanent public parkland. The demand for this sort of amenity will continue to increase, and we do not feel that the present proposals reflect this situation or pay due regard to the scenic quality of the area.
ii. The additional population at Godinton would throw considerable extra traffic on to the already inadequate road network. Even with improvements to the network, the extra traffic would result in a lowering of the environmental standards in those areas between Godinton and the existing central area.

The villages

258. The Designation Area does not include any of the villages in this part of Kent which are generally recognised as having outstanding environmental quality. Nevertheless it does contain a number of small villages and hamlets the future of which must be carefully considered. These are Mersham, Bromley Green, Shadoxhurst and Great Chart.

259. The particular use to which the land adjacent to these villages would eventually be put could not be known definitely until Master Plan stage, but two possible solutions present themselves and we do not think it would be unduly difficult to implement one or the other, depending on the location and character of the particular village. One solution would be to include the village in a new residential area while retaining its identity as a unit; the other to locate it within one of the large open spaces within the city structure.

260. In the former case the visual impact might consist largely of an expansion of the kind of new residential development which is already found on the peripheries of some of the villages; in the latter case the village could virtually acquire its own miniature green belt. In either case, sensitive design could ensure that not only is the fabric of the village left intact but that in some cases the character of its immediate surroundings could also be largely retained.

261. The possible exception to this policy would be Mersham. This village is located on what could become one of the most strategically important sites in East Kent, lying as it does near the main rail line and the possible intersection of M20/A20 with the South Coast Trunk Route and its possible extension to the north coast of Kent. The site therefore has exceptional potential for the location of the city/sub-regional centre and for industry. This potential is substantially increased by the possibility that the Channel Tunnel terminal may be located in the Sellindge area.

Agriculture

262. Our approach throughout has been to avoid as far as possible development on Grade I and II agricultural land (for latest survey see Appendix 2 and Foldout 2).

Nevertheless some such land does occur within the Designation Area—namely areas near Mersham, Great Chart and Hothfield. If, however, Line B (Foldout 10) were chosen as the northern boundary of the Designation Area, the above-average land around Kennington would also be affected but we would emphasise again that this would only be for the sake of administrative convenience and would not imply development of that land.

263. The areas near Mersham, Great Chart and Hothfield are all sited at such important locations that none of the alternative urban structures we considered excluded them. Our remarks concerning impact on the village of Mersham apply equally to the farm land around it. The land around Great Chart is not only embedded in the body of the Designation Area but forms part of the very important northern belt of the city to which we have referred. The area around Hothfield is an integral part of the parkland complex which we consider so essential to the open space system of the city. (In this case, it is possible that grazing could be continued.)

264. If Line A shown on Foldout 10 were to be adopted the areas described in the two previous paragraphs would total some 7% of the land within the Designation Area. We suggest that to locate a city of almost a quarter of a million people within an area of generally outstanding agriculturel quality with the loss of above-average land of the order mentioned is, in all reason, an acceptable proposition.

Forestry and Nature Conservancy

265. The principal impact on these interests would be on Hoad's Wood. This site is so strategically situated that it is almost impossible to avoid conflict between the needs of city structure and those of timber production and conservation. All the alternative structures affect this area in some way or other.

IMPACT OUTSIDE THE DESIGNATION AREA

266. It would be unrealistic to suppose that the new city would affect only those communities and interests which are located within the Designation Area. Impact in the broad sense would be countrywide, but special consideration would have to be given to agricultural interests and to the towns and villeges close to the periphery of the built-up area.

Agriculture

267. The direct loss of ferming land to urban development does not represent the totel impact on agriculture. Any urban community has harmful effects on the agricultural land around its perimeter—especially through wilful or thoughtless damage and rubbish-dumping. This indeed was one of the reasons why we discarded any form of urban structure based on compact but relatively isolated nodes.

268. There are two principal methods of dealing with such pressure. One is to ensure a generous provision of public open space within the city in order to absorb much of the pressure at source. The other is to create a "buffer zone" of woodland and open space between the built-up area and agricultural land. Both of these have been ellowed for in our land need calculations and urban structure

studies. (We were not unaware of the moat-like protection which the Royal Military Canal could contribute to Romney Marsh.) Such a buffer zone could not be expected to solve the problem completely, but would help considerably.

269. We understand that in an ideal situation the agricultural land immediately beyond the buffer zone would be arable, with the more vulnerable livestock farming areas further away. To rationalise the existing farming structure in this way would be a complex operation, but it might be worth investigating.

Forestry and Nature Conservancy

270. Forestry Commission interests in the vicinity of Orlestone Forest and Fagg's Wood, and Nature Conservancy interests in the Ham Street Woods, might be affected to some extent because of their proximity to the built-up area, but this would depend to a great extent on tha detailed design of public access arrangements at implementation stage. Hothfield Common would remain as an element in a larger area of permanently designated open space.

Towns and villages

271. Most of the smaller communities situated around the new city would experience pressures of various sorts. The two most serious types deserve mention here. First, there is the danger that these communities could be swamped by increased demand for residential accommodation (especially from the higher income groups) and for any specialised facilities which they can offer. Some of this pressure could be successfully absorbed and might even be welcomed, but generally speaking it would have to be contained.

272. We have recommended a wide range of residential density and environmental conditions within the city (including a substantial proportion of low density development). One of our reasons for doing this was to attract and retain the type of household which otherwise would be likely to look to the established communities for accommodation. Similarly the facilities which the new city would provide should preclude any undue pressure on, say, Tenterden's shopping facilities. These positive measures, combined with rigorous planning control, would help to ensure that these communities would not suffer unduly on account of the city.

273. It should also be remembered that the city would exert an inward pull as well as an outward pressure. Many of the people who at present come to live in East Kent of their own volition from the metropolitan area and elsewhere might find the city an attractive place in which to settle down. Those intent upon living in the countryside would, of course, continue to try to do so, but many of those who simply want to settle somewhere in the area could move to the city, thereby removing some of the pressure for residential development in the sub-region.

274. The second form of pressure on surrounding communities which would have to be guarded against would arise from the increased vehicular movement (including constructional traffic) generated by the city. If the existing road network were to be left as it is, there would be a danger that minor roads, including those passing through the outlying villages, would become overloaded with city traffic. The entry points to the city would need to be carefully designed in order to avoid this and some modification of the existing secondary network would be required.

275. Again, the city could have a beneficial effect in this respect. Many of the small communities which already suffer badly from through traffic could benefit from the general road building activity in the area—by-passes which are only talked about now might well have to be built for other reasons.

276. Most of the physical impact, then, could be controlled and not all of it would be disadvantageous. These communities would also, of course, be subject to other more subtle socio-economic influences. These, however, would tend to take the form of an acceleration of existing trends rather than the introduction of new ones.

PHASING OF DEVELOPMENT

277. Although we were not asked directly to consider the physical location of the phases of development, we have studied the possibilities since these could have affected a decision on the effectiveness of a particular city structure. We consider that the first major areas of the new city should be located immediately south and south-west of Ashford town for the following reasons:

i. We have thought of this as an area largely of medium density housing, which will be most in demand during the early years of growth.

ii. Such a location would be within easy reach of Ashford town's existing centre in the early years but within equally easy reach of the new city centre as it develops.

iii. A28 provides the easiest access from the south to Ashford town's existing centre and to A20 so that the location of the first development areas near this road would offer considerable advantage.

COST OF DEVELOPMENT

278. Our Terms of Reference also require us to investigate the costs of alternative solutions. As we have stressed throughout our report, we do not think that any serious alternative to the broad geographical area exists. However, in evaluating the alternative structures, we costed those elements which might have been expected to vary according to the shape of, rather than the content of, the city—these were public utility services and the main road network. We could find no appreciable differential in the cost of services. We have already noted that the road network costs of the square structure, on which the Designation Area is based, would be less than those of the alternative long structures.

279. In addition to these comparisons we estimated the total capital cost of the new city at £490 million. The build-up of this figure is given in Appendix 5, and summarised in Table 11. This is, in effect, an estimate of the cost of the accommodation and facilities required in 1991 at 1967 prices.

280. We wish to stress three points which should be borne in mind when interpreting these costs:

i. There is no Master Plan for the new city. The quantities and nature of the development have only been defined in a most general way, and the cost estimates are thus open to a considerable margin of error.

ii. We have followed the general rule that costs of development outside the Designation Area should not be included unless they are directly attributable to the proposed development. Thus we have included for water supply and river improvements outside the Designation Area, but not for improvements to the regional road network. This is clearly a rather arbitrary distinction.

iii. We have taken no account of time-dependent economic considerations. Although we have not gone into the phasing of expenditure it is clear that it would be spread over at least 20 years, from 1971 to 1991. This means that the total cost which we have presented as £490 million is not comparable with the total cost of any other project unless it is phased in the same way over the same period of time.

Table 11
Summary of cost of development

Land Use Element	*Cost (£)*	*Cost per Dwelling (£)**	*% age of Total Cost*
Housing Areas			
Net housing	207,320,000	3,994	42·3
Ancillary housing facilities	37,157,000	716	7·6
Open Space and Recreation	2,082,000	40	0·4
Industrial Estates	58,350,000	1,085	11·5
Centres			
City/Sub-regional	46,545,000	897	9·5
Secondary facilities	8,015,000	154	1·6
Hospitals	10,500,000	203	2·2
Transport	53,550,000	1,032	10·9
Public Utility Services			
Sewerage	5,007,000	97	1·0
River works	650,000	11	0·1
Water supply	6,000,000	118	1·2
Electricity supply	24,000,000	482	4·9
Gas supply	1,250,000	24	0·3
GPO telephone services	13,500,000	260	2·8
Refuse disposal	725,000	14	0·1
Total (excl. land acquisition)	472,551,000	9,105	96·4
Land acquisition	17,750,000	342	3·6
Total Cost	490,301,000	9,447	100·0

*Estimated no. of dwellings 51,900

Chapter 6: Implementation and Rate of Growth

INTRODUCTION

281. In Chapter 3 we discussed the separate needs of the new city such as employment, housing, public utilities and schools. In this chapter we discuss certain aspects of implementation, especially those which have a bearing on the growth rate given in our Terms of Reference.

HOUSING

282. It was stressed elsewhere in the report that there is a need to provide a substantial proportion of housing in the lower and medium density ranges. There are several reasons for this apart from the first, and most important, consideration that the majority of families would best be suited with ground level dwellings with garden space. Some were touched on in Chapter 3.

283. If the rate of growth suggested in the Terms of Reference for the new city were to be achieved very large investment would be needed over a short period of years and we would assume that it would be the intention to use private as well as public financial resources for building. These private resources will be taken up elsewhere if not in the new city, in which case a separate public investment would be needed to provide schools and other services. But if public and private housing development were to take place as a partnership effort in the new city then there would be the opportunity, arising from this concentration of effort, of greater co-ordination of all the ancillary services which result from new housing development whether public or private. At this scale of development a wide range of services could be provided to modern standards.

284. There would certainly be a substantial demand for private housing from people working in the new city; we have already mentioned the importance of an adequate supply of housing for owner-occupation in attracting office staff. The demand for private housing is likely to increase with increasing prosperity, and to come mainly from families with children who would look for the space standards in and round their homes which go with lower and medium density housing. But market conditions would have to be suitable if private funds are to be attracted.

285. If the new city were to go ahead backed by public funds for housing but without any encouragement for the provision of private dwellings, then there would be competition for land in other towns and villages in East Kent. A section of the community working in the new city would then live outside it and its spending power and social activity would be diverted from the new community.

Thus one of the problems of the first generation of new towns would be repeated. We think that the new city could be planned from the start to accommodate the owner-occupier and that this would be in the interests both of the new community and of the sub-region.

286. A possible disadvantage of a fairly large scale private housing contribution would be the difficulty of restricting occupancy to people coming from London and to those working in the new city. Some controls in this respect can be applied initially to publicly provided housing whether for sale or rent. The risk is that privately owned houses would prove attractive to London commuters thus aggravating an already difficult situation. The same could apply to rented accommodation on a change of job by the tenant. In spite of these problems we see no reason to depart from our view that substantial numbers of private dwellings should be encouraged in the new city and that many of these would be in the lower and medium density range.

CONSTRUCTION

287. The ability of the construction industry as a whole to meet the demands which will be put on it in this south-eastern corner of England during the next twenty years could be one of the prime determinants in achieving the rate of growth suggested for the new city. There would be a great deal of competition for labour, building materials and expertise—from the large-scale housing and road construction schemes in the London Boroughs, from housing development programmes in the rest of the Metropolitan Region and East Kent, from the Channel Tunnel and a host of public and private projects.

288. The supply of building materials is a national rather than a regional problem. There is no absolute limit to the supply of any particular materials except locally won sand and gravel. The Ministry of Public Building and Works has estimated that, without taking into account the demand from the new city or the Channel Tunnel, supplies of these two materials, within the normally accepted haulage distance of Ashford, will be exhausted in the late 1970s. After that, haulage from the Midlands and off-shore dredging to depths of 200 feet and more will be required; the latter will mean special investment in ships and handling facilities. The need for these arrangements might be brought forward by concentrating a substantial part of the South East's population growth in Kent.

289. The Thameside areas are already well off for manufacturing firms connected with building and building materials—cement, bricks, timber, joinery, sheet and board mills, plastics and chemicals are all well represented.

290. Our inquiries suggest that there need be little difficulty in finding contracting and manufacturing firms willing to work in the area, and that investment in contracting and manufacturing capacity would be made if reasonable assurances could be given of continuity of work. With large contractors, for example, it would be advantageous to provide five year rolling programmes and serial contracting for firms which are capital, rather than labour, intensive. It would also be beneficial if a clear policy were to be evolved for the use of selected building "systems" with a low site labour content wherever appropriate. The new city would have a locational advantage in that spare constructional capacity could be absorbed in the huge metropolitan market if there were unforeseen changes in the programme.

291. The majority of construction industry workers in the new city would be recruited from within daily travelling distances of Ashford. It would probably be necessary to offer special incentives to attract and keep a sufficient supply of labour—housing (particularly for key workers even if they were not being "overspilled" from London), travel and subsistence allowances, good working conditions and greater security of employment than could be obtained elsewhere. If arrangements were made early in the scheme to train construction operatives locally there would be a possibility of replacing skilled labour from within the area—an important consideration in view of the peak demand for labour in the 1980s.

292. Increasing productivity would be an important factor in meeting demands on the construction industry. The most rewarding opportunities seem to lie in housing and school building. But it must be remembered that there would be more maintenance work and that there is little scope for overall increase in productivity in this field.

293. One major factor controlling the pace of development would be the ability of the Development Corporation to initiate and sustain such a large programme of construction. In house production alone, the programme would be more analogous to those of the biggest municipal authorities in the country rather than to those of the existing New Towns.

294. To sum up, it would seem that a rate of construction reaching between 3,000 and 4,000 dwellings a year by 1981-1986, together with all the other urban facilities and services which the new population would require, might be difficult to reach and maintain. Several causes of delay could arise. The most likely are shortages of labour, particularly skilled labour; breakdown in co-ordinating the development of housing, employment, essential services, education, and other facilities; particular local competition for labour and materials, especially aggregates; and the possible shortage of aggregates in the 1970s. However, if these problems are recognised, and the need for a large and efficient organisation is appreciated at the outset, we can see no intrinsic reason why such a programme of construction should not be achieved.

SOCIAL QUESTIONS

295. There would be certain social problems to be considered in expanding a community of some 36,000 people to one of about 240,000 in so short a time as 25 years. The present Ashford would change from a small country town to become an integral part of a large new city. This means that the existing community would have to accept some measure of change including the arrival of new people. In return they would undoubtedly have wider opportunities for work and their children would have a much greater choice of jobs with good prospects. A city of nearly a quarter of a million people could be expected to offer a variety of services, shops and entertainment far beyond the facilities of a town about one fifth the size, and to that extent the range of activities available to the local people and their children would be greatly improved.

296. For the newcomers there are bound to be all the usual problems of settling into a new home. Many of these problems have occurred in new towns already built, and experience has shown that much can be done through help and advice,

particularly to housewives, to sort out the difficulties of coping with new surroundings, new schools, new shops and a bigger budget. The families who move in would have to face these problems somewhere if they are to have better housing; in a new city specialist advice could be provided. Where so many people were concerned, as in this scheme, it would be essential to provide advisory services on a large scale.

297. Much has been said in the past of the lack of "balance" in the population of new towns, usually with reference to age structure or the population structure. To some extent "balance" is like the "average" man—a concept rather than a practicable human state. There are many towns which are "unbalanced" in the sense that they have large proportions of people in older age groups, or employed in a particular industry, which are not less successful communities for that. Their "unbalance" is an accepted thing. The counter argument, of course, is that there is advantage in achieving the greatest possible range in the ages and occupation structure of a growing community for this lends variety to the social and economic scene which leads to a more broadly based and interesting community life. Whilst accepting this proposition in general terms we do not think that it is conclusive enough to merit the introduction of special measures solely to rectify the inevitable degree of "unbalance" which would be evident during the early stages of the city's growth, for example, in age structure.

298. The feeling of an established order of things in a city, which is perhaps what we all expect to find in this country, is something which only comes in time as new generations grow up to know it as home, and in response to the energy and imaginetion with which people respond to the challenge of creating a new community. The success of the first generetion new towns can now be seen and there seems to ba no reason why this, even bigger, experiment should not succeed.

EXPANSION OF EMPLOYMENT

299. In Chapter 3 we gave our estimate of tha "job gap", that is to say the number of new jobs needed in the Study Area, over and above those resulting from the growth of industrial firms already in the area in 1966 and of locally dependent employment, if the objective of a balance of jobs and resident working population is to be achieved. Very roughly, our estimate indicated that the annual requirement during the period of rapid expansion (1976-1986) would rise from about 1,500 jobs at the beginning to 2,500 or more at the very peak. The bulk of these, one can reasonably assume, would be in manufacturing establishments, although there would also be some in "footloose" offices and some, depending on the effect of the Channel Tunnel, in distributive and other service activities.

300. The great majority of the new jobs, given the present policies for the distribution of employment between Regions, would have to come from other parts of the South East, presumably mostly from London. Information about the number of factory jobs resulting in the new locations from the transfer of establishments or from the opening of branch works from 1945 onwards is available from a Board of Trade research project. This investigation divided the South East Region (excluding East Anglia) into seven areas, one of which was that of the Greater London Council. Employment in late 1965 in:

i. establishments transferred from the G.L.C. area to other parts of the South East

ii. manufacturing branches set up in other parts of the South East by G.L.C. firms

iii. establishments transferred from any of the other six areas of the South East to a second area of the six, and

iv. branches set up in one of the six by firms based in a second of the six

totalled 191,000.* This works out at about 9,500 jobs for each year of the period. Rather more than half the employment was in new branches, rather less than half in transferred units. "Movements" within the South East, as measured in the way described (which, however, excludes "movement" within any of the seven areas of the South East) may not be of the same order in the future. Nevertheless, we suggest that the figures indicate that the new city may require a substantial share of the industrial employment likely to move to new locations in the South East.

301. New industry has moved to Ashford in recent years, and the town has experienced a modest growth in manufacturing employment. As a location for industry, Ashford and the new city would be perfectly suitable, offering good sites, adequate road and rail communications, reasonable proximity to London and no special labour problems that cannot be coped with under the planned expansion programme. The same can be said, of course, for most of the urban expansion schemes planned or proposed in the South East.

302. The new city's unique feature would be the proximity of the Channel Tunnel terminal. It is not intended that this should be the actual terminus, except for the shuttle service carrying motor vehicles. Passenger and freight trains would start and finish at selected termini in London and other main centres, though (except for a few passenger expresses) they would stop and could take on passengers and freight at the Tunnel mouth terminal. It would be a mistake to think of the terminal as equivalent to a major sea-port in the sense of creating local employment, though there would doubtless be one or two thousand workers at the terminal and in ancillary activities. It is, in any case, uncertain whether a great proportion of the employment that is attributable to the terminal would be located in the Designation Area or would occupy new city residents. This would depend very much on the position of the terminal—if it were close to Folkestone, most of the ancillary employment (in cafés, hotels, travel offices, depots, etc.) would probably be in or near the town; it is likely that at first a large part of the employment in the terminal itself would be taken up by workers transferring from cross-Channel sea-terminals that would be closed down.

303. There remains the wider question of the attraction of the terminal for employers wishing to make use of the Tunnel. As the benefits of the Channel Tunnel would not be confined to East Kent, the advantage of an industrial site in the new city would lie simply in the mileage saved for traffic passing through the Tunnel. This saving is likely to be significant for firms which conduct a large proportion of their business with France, Germany and the Benelux countries. For more distant places the benefits would be less significant—the mileage saved would be marginal in relation to the total distance, the Tunnel may not be the best land-sea route, and air services would have the advantage for speed. For business within the United Kingdom, however, the new city is not so well placed. For most firms, a more central location in the country would mean a shorter distribution network, and probably shorter distances from main suppliers. Thus the question is one of a balance of advantages, and it seems that nearness to the Tunnel terminal would only be a major attractive factor for firms with exceptionally strong trading links with the Continent, especially ones whose domestic links are mainly confined to London and places south of the Thames.

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*Source: Board of Trade, Distribution of Industry Division; Research Branch. "Movement" includes new branches and actual transfers.

304. The Channel Tunnel terminal is likely to stimulate some growth in office employment locally, though here again the effect may be more limited than would appear at first sight. The numbers employed in dealing with freight and passengers might not be very great. For "footloose" offices, the saving in distance on cross-Channel rail or road travel would have to be weighed against the possible lack of air services. Moreover, the fastest cross-Channel express trains from London are not intended to stop at the terminal. If the terminal were nearby it might attract to the new city offices dealing with continental firms, but if it were as much as twelve miles away it is less likely to be an important factor in attracting "footloose" offices.

305. To sum up, the new city would be a perfectly suitable location for industry and offices, but we cannot foresee its having an overwhelmingly powerful "built-in" impetus for growth, whether from existing industry, the Channel Tunnel terminal or special locational advantages. Thus the city would be competing on no more than equal terms with other towns in the South East (notably the other new towns, existing or planned) for a share of the "mobile" employment that can be controlled by the Government in accordance with its policies for the regional distribution of industry. The problem becomes one of co-ordination and allocation—a matter of policy rather than simple feasibility. Given that the city's expension would be part of a co-ordinated scheme of growth—in which policies for distribution of population and employment are geared to one another—and given that the necessary accommodation and infrastructure could be provided, we have no reason to suppose that the scale of employment required would not be feasible.

THE RATE OF GROWTH

306. In Chapter 3, we gave the reasons which led us to adopt the immigration programme on which the study has been based; they were the need for a reduction in the rate of immigration towards the end of the planned expansion programme, and the need for the period of maximum annual output in building the new city to last as long as possible within the overall programme. We pointed out that the latter objective could not be achieved exactly while adhering to the figures for population increase specified in the Terms of Reference—immigration, inevitably, would continue to rise between 1981 and 1986, the period of maximum intake. The sharp peak in immigration during these years would undoubtedly give rise to many problems, for example, in the provision of employment. We therefore examined two other programmes to see whether the awkward peak in the immigration curve could be smoothed out.

Alternative immigration programmes

307. Both programmes allow for a total of 150,000 immigrants by 1991. Figure 4 compares the two alternative programmes with the immigration programme adopted for this study. Alternative A confines the "run-down" to the period between 1986 and 1991, but allows for a constant maximum rate of immigration over a period of about ten years. The build-up to this rate of immigration would have to be achieved by 1976 and a greater number of immigrants accepted by 1981 than the terms of reference stipulate. Alternative B accepts the totals for immigration at 1981 and 1991 given in the terms of reference, but does not allow

for a run-down in the rate of immigration during the period of planned expansion —this run-down is assumed to begin in 1991/2 and to last ten years. Alternative B would result in a larger population (by some 30,000 people) in year 2001 than either of the other two programmes.

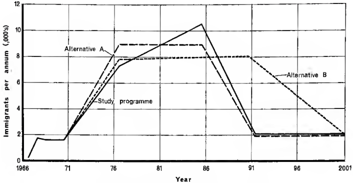

Figure 4. Alternative immigration programmes

308. We estimate that, under the study programme, the need for jobs in new industry* (assuming no net commuting out) would rise from about 6,000 in 1976-1981 to about 10,000 in 1981-1986 and then plunge to 2,000 or less in 1986-1991. Moreover, because of this and the abrupt run-down in population intake, there would probably be the opposite problem towards the end of the century of finding enough workers to meet labour demand. Both the alternative immigration programmes reduce the peak in the need for new industry during the period of planned expansion; in both cases the demand is greater between 1976 and 1981 than in the 1980s. With Alternative A there is an apparent labour shortage at the end of the century but with Alternative B it appears more likely that jobs and resident population would be more nearly balanced at this point, though there is a sharp peak in the demand for new jobs in new industry between 1991 and 1996 when large numbers of the children of the early immigrants would be seeking jobs. Figure 5 compares the requirements for jobs in new industry under the three programmes (the estimates are very approximate, and we would emphasise that both Figure 4 and Figure 5 are intended only to give an impression of the broad effects of the different programmes).

309. The results of investigating the alternative programmes were not conclusive enough to suggest that, as far as the creation of new jobs is concerned, a different immigration programme should necessarily be adopted from the one we have assumed in this study. The apparent labour shortage in 2001, which would mean, in effect, a net daily inflow of workers, would be less than is normal—at present—for towns of similar size. We could scarcely suggest a considerably

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*New industry, for short, here includes "footloose" offices and other externally dependent service activities. The estimates refer to establishments newly arrived within the quinquennium; employment in the new industry of previous periods, together with an allowance for growth after arrival, was subtracted from the cumulative "job-gap" (given in Table 3) at the end of each quinquennium.

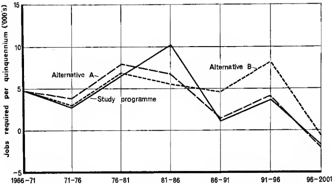

Figure 5. Jobs required in new industry during each quinquennium

larger ultimate population (which the second alternative implies) solely to avoid a small labour imbalance at a particular point in time. The avoidance of sharp peaking in demand for jobs in new industry which either alternative would achieve, would be a real, though not overriding, advantage.

310. In terms of total population and the formation of households (which would be reflected in the demand for new housing) Alternative A has the disadvantage of a faster acceleration in growth in the first years of planned expansion; Alternative B shows a steadier rate of increase during the 1980s but leads to a larger end of century population.

Conclusion

311. Although the rate of growth suggested in the Terms of Reference is undoubtedly a high one, we have not discovered any reason why it should not be achieved, provided always that there are sufficient financial resources and enough skilled personnel to carry out the undertaking, and provided that all Government Departments are enthusiastically in favour. There is enough land; there is no physical reason why the population should not have all the necessary public utility services; we cannot find that there is not enough building material to construct the city or that there could not be enough employment. The difficulty, as always in this type of study, is to determine whether or not it is feasible to build so much at once and whether or not it is realistic to suppose that so many activities can be smoothly co-ordinated; the critical factor may well lie in the scale of the organisation and administration required rather than in the physical nature of the programme. It is impossible in an exercise of this kind to go into these questions in any depth; much more information on the resources available to build the new city would be needed. However, our brief examination of alternative growth rates has shown that there might be advantages in adjusting the immigration programme to ease the problems which arise from the phasing specified in the terms of reference. The problems which may be met in achieving the rate of growth are certainly worthy of more detailed study.

Appendix 1: Consultants' Terms of Reference

Project

1. The project under consideration is a major expansion in the Ashford area.

2. This would involve a planned intake of 150,000 over the next 25 years plus its natural increase and that of the existing population. The purpose of the project is to relieve London's housing problems by providing both housing and employment for Londoners.

3. It will be highly desirable to achieve a fast build-up before 1981 if possible by 75,000 additional population including the natural increase of immigrants but *not* including that of the existing local population. If, however, the consultants consider that there are strong arguments in favour of a somewhat slower rate of intake, they may recommend accordingly.

4. The consultants' task is to recommend to the Minister an appropriate area for designation under the New Towns Act.

Designation Area

5. This should be related to the amount of land needed to provide for the development needs of the incoming population plus its natural increase and that of the existing population for the next 25 years.

6. In considering the area suitable for designation, the consultants should not look beyond a radius of approximately ten miles from Ashford. Alternatives should be assessed in terms of comparative costs and benefits.

7. Account should be taken of the need to preserve high quality agricultural land and of the possibility of further growth beyond the Designation Area after 25 years if the need arises.

Employment

8. It should be assumed that employment and working population will be kept broadly in balance.

The Channel Tunnel

9. The consultants should take as a working assumption for the purposes of the study the agreement reached between the Minister of Transport and the French Minister of Equipment and embodied in the communiqué of 28 October 1966, with the Tunnel likely to come into operation in 1975. They are required to consider, in close consultation with the transport authorities, what effect this would be likely to have on the designation area and on the planning, employment and structure of the town.

Sub-Region

10. The consultants are required to work closely with the local planning authorities and to keep them in touch with the progress of the study. The Kent County Council will advise the consultants on the sub-regional framework to expansion in the Ashford area, so far as this affects Kent, including the likely effect of the consultants' proposals on other areas in the County. It is not intended that the consultants shall themselves engage in a sub-regional study.

Appendix 2: Agriculture

The following information from the Agricultural Land Service explains the grading of land shown on Foldout 2.

Grade I Land with very minor or no physical limitations to agricultural use. The soils are deep, well drained loams, sandy loams, silt loams or peat, lying on level sites or gentle slopes and are easily cultivated. They retain good reserves of available water, either because of the storage properties of the soil or because of the presence of a water table within reach of roots, and are either well supplied with plant nutrients or highly responsive to fertilisers. No climatic factor restricts their agricultural use to any major extent.
Yields are consistently high on those soils and cropping highly flexible since most crops can be grown, including the more exacting horticultural crops.

Grade II Land with some minor limitations which exclude it from Grade I. Such limitations are frequently connected with the soil—for example, its texture, depth, or drainage, though minor climatic or site restrictions, such as exposure or slope, may also cause land to be included in this grade.
These limitations may hinder cultivations or harvesting of crops, lead to lower yields or make the land less flexible than that in Grade I. However, a wide range of agricultural and horticultural crops can usually be grown, though there may be restrictions in the range of horticultural crops and arable root crops on some types of land in this grade.

Grade III Land of average quality, with limitations due to the soil, relief or climate, or some combination of these factors which restrict the choice of crops, timing of cultivations, or level of yield. Soil defects may be of structure, texture, drainage, depth, stoniness or water holding capacity. Other defects, such as altitude, slope or rainfall, may also be limiting factors; for example, land over 400 ft. which has more than 40 in. annual rainfall (45 in. in North-west England, Western Wales and the West Country) or land with a high proportion of moderately steep slopes (1 in 8 to 1 in 5) will generally not be graded above III.
The range of cropping is comparatively restricted on land in this grade. Only the less demanding horticultural crops can be grown and, towards the bottom of the grade, arable root crops are limited to forage crops. Grass and cereals are thus the principal crops and the land is capable of giving reasonable yields when judiciously managed and fertilised. In fact, some of the best quality permanent grassland may be placed in this grade, where the physical characteristics of the land make arable cropping inadvisable.

Grade IV Land with severe limitations due to adverse soil, relief or climate, or a combination of these. Adverse soil characteristics include unsuitable texture and structure, wetness, shallow depth, stoniness or low water holding capacity. Relief and climatic restrictions may include steep slopes, short growing season, high rainfall or exposure. For example, land over 600 ft., which has over 50 in. annual rainfall or land with a high proportion of steep slopes (between 1 in 5 and 1 in 3) will generally not be graded above IV.
Land in this grade is generally only suitable for low output enterprises. A high proportion of it will be under grass, with occasional fields of oats, barley or forage crops.

Grade V Land of little agricultural value with very severe limitations due to adverse soil, relief or climate, or a combination of these. The main limitations include very steep slopes, excessive rainfall and exposure, poor to very poor drainage, shallow depth of soil, excessive stoniness, low water holding capacity and severe plant nutrient deficiencies or toxicities. Land over 1,000 ft. which has more than 60 in. annual rainfall or land with a high proportion of very steep slopes (greater than 1 in 3) will generally not be graded above V.
Grade V land is generally under grass or rough grazing, except for occasional pioneer forage crops.

Additional small patches of Grade II land may occur on the northern side of the Great Stour Valley, and there may be a few small patches of Grade IV within the broad Grade III tract of the Low Weald. None of these could be sufficiently extensive to alter the broad picture as presented on Foldout 2.

Appendix 3: Population Forecast—Method and Assumptions

Introduction

1. In this Appendix we set out, as briefly as possible, the main assumptions used in the demographic projections, and the main steps in the calculation.

2. Projections were made, for the Study Area, of the two main elements of the population—the 1961 "nucleus" population of the area and the "planned" immigration between 1966 and 1991.* The model used was designed to enable us to feed in alternative assumptions on four key variables affecting natural increase, and to calculate relatively quickly the results of these different assumptions. In view of the unavoidable uncertainty of demographic forecasting, it was decided for the Ashford Designation Study to make "high" and "low" projections, representing upper and lower limits of what we estimated was a realistic range of possibility. This was thought preferable to making a single "best estimate" which could not indicate the possible range of error.

Demographic assumptions

3. The four key demographic variables are the following: the number of live births per marriage; family spacing; age at marriage; and mortality rates. The assumptions made (in this study) are described below:

i. *Live births per marriage:* The number of children assumed for marriages in 1970 and beyond were: low, 2·30; high, 2·80. The low figure is close to the Registrar General's low estimate for 1962 marriages, but we have assumed a high figure somewhat above his high estimate, since there is an upward trend in his forecast of the upper limit.

ii. *Family spacing:* expressed as cumulative number of births at different marriage durations; very roughly, the assumptions adopted were the highest and lowest values obtained in an analysis of the cumulative births in marriages of different durations over a run of post-war years.

iii *Age at marriage:* For the "high" projection it was assumed that there would be a continuation of the trend to earlier marriage until 1971, and a reduction in the proportion of women who remain unmarried to 5·5%. The corresponding low assumptions were: no continuation in the trend, and 6·1% remaining unmarried. On the high assumptions, for example, 8·8% of females born between 1956 and 1961 are expected to marry between 1971 and 1976, and 57·5% between 1976 and 1981; on the low assumptions the comparable figures are 6·6% and 51·8%.

iv. *Mortality rates:* For the "high" projection we assume a more rapid decline in mortality rates than for the "low". Our assumptions were based partly on the Registrar General's own estimates of long-term changes in mortality rates (which postulate a decrease of one-half or more by the end of the century for the younger age groups, and lesser decreases, declining with increasing age, for the middle-aged and elderly), and partly on an examination of actual changes in recent periods. The Registrar General's assumptions for the different age groups lie between the high and low assumptions which we eventually made, though they are generally much closer to our high projection assumptions.

4. Assumptions had to be made on two further factors, though for these the same assumptions were used in both the "high" and the "low" projections:

i. *Illegitimate births:* It was assumed that the ratio of these to legitimate births would be 6·35 : 100.

ii. *Sex at birth:* The ratio of male to female live births was assumed to continue at 108 : 100, as it has been without significant variation for many years.

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*The method used is described in greater detail in The South Hampshire Study—Supplementary Volume 1. HMSO—1966.

Age structure

5. The base data for the projection are the numbers and age and sex structure of the nucleus and immigrant populations. The nucleus population figures were obtained from 1961 Census of Population data, and the assumed age and sex structure of the planned immigrants was based on actual migration into existing London New Towns.

Households

6. The numbers of private households were estimated by applying assumed "headship" rates to the projected population in different age, sex and marital condition groups. The method used was one described in a paper by A H Walkden.* An allowance of 3·4% of total population—the 1961 national percentage—was made for people resident in institutions instead of private households.

Working population

7. The resident working population was estimated by applying assumed activity rates to the projected population in different age-sex groups. The activity rate assumptions were based on those used by the Ministry of Labour for its forecasts of national working population.

"Voluntary" immigration

8. Net immigration into the Study Area between 1961 and 1966 was estimated at just under 4,600 (including the first arrivals under the TDA scheme); net "voluntary" immigration over and above the "planned" immigration was assumed to run at 700 a year between 1966 and 1971, after which point all immigrants were counted as "planned" (without necessarily suggesting that they would all come under some selection scheme). These two groups of migrants were allowed for in our projections by the simple expedient of using growth factors worked out for the South Hampshire Study, which were based on ten year periods and a constant annual rate of immigration. These growth factors were applied to an assumed steady immigration of 700 a year between 1961 and 1971, and rough adjustments subsequently made to allow for the small actual annual variations from 700 a year. The results were added to the projected figures for the "nucleus" and "planned" immigrant population.

The population in the Designation Area

9. The demographic estimates for the Study Area were re-worked for the recommended Designation Area by applying simple adjustment factors to two "streams" of population, the "nucleus" and "voluntary" immigrants (the third stream of "planned" immigration was assumed to go entirely within the Designation Area and therefore did not require adjustment). For the "nucleus" population, the adjustment was made by working out the proportion of the 1961 Study Area population within what we now propose as the Designation Area, and applying this ratio to the projections for the "nucleus" population. Net "voluntary" immigration into the Designation Area was estimated at one third of the total into the Study Area, and so the original demographic estimates for the "voluntary" migration were divided by three to arrive at the Designation Area estimates. (Note: In the section on the Population forecast in Chapter 3 of the Report, we have grouped the "nucleus" population and "voluntary" immigrants together to form the "local" population.)

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*"Population Studies"—November 1961.

Appendix 4: Employment

The method of projection

1. To arrive at a figure of future employment requirements in the Study Area, separate projections by five year periods were made for:

i. The resident working population, derived from the demographic projections;

ii. The demand for workers in activities serving mainly the local area whose employment we have taken to be related to the size of the resident population (i.e. the locally-dependent category);

iii. The demand for the workers in those manufacturing firms already established in the Area, whose orientation is non-local (i.e. they are externally dependent);

iv. The "non-classified" element—those self-employed persons, public employees and those persons who work in Ashford but whose National Insurance cards are exchanged elsewhere—who are not included in the Ministry of Labour statistics on which (ii) and (iii) are based—but for whom allowance had to be made in our calculations.

The sum of the last three categories subtracted from the working population gives the gross job requirement for each quinquennium, if the objective of a balance of jobs and working population in the Study Area is to be achieved.

2. Estimates of the numbers of people requiring jobs will be found in Table 2. The method of estimation is explained briefly in Appendix 3.

The growth of locally dependent industry up to 1991

3. The locally dependent category consists of employment concerned with the provision of goods and services for the local population. Naturally this category tends to respond to changes in the local population and in its purchasing power—this is true as a general statement even though some of the activities concerned would only be serving certain sections of the population, and a few would be serving local industries rather than private consumers. The basis of the method of projection was the calculation of co-efficients relating employment in each "locally-dependent" industry to total local population. Allowances have been made, where appropriate, for:

i. changes over time arising from changes in the pattern of demand and supply (national co-efficients were projected by regression analysis);

ii. a temporarily low level of employment in several service activities. Compared with other towns of similar size, New Towns have usually been characterised by a lower level of such employment, the population's need being met largely by other service centres—not least in the case of the London New Towns, by the metropolis itself. For several reasons we think it unlikely that the "lag" in service employment will be as marked or as long lasting as it has been in earlier London New Towns. Our reasons are:

    a. distance from London is twice that of other London New Towns (though good communications somewhat reduce the effect of this differential);

    b. the size of the development programme is such that by 1986 the resident population in the Designation Area would be more than three times that of the largest of the "Mark I" London New Towns in 1961 when they were subject to "lags" in service employment, and considerably larger than any other town in East Kent (a town of this size would, by 1986, have attracted many of the well-known multiple stores and many "higher order" services, and should be beginning to compete on level terms with the longer-established major centres in the sub-region);

    c. Ashford's existing centre already offers a fairly good range of shops and services.

These considerations gave grounds for supposing that—existing New Town experience notwithstanding—the new city's dependence on other centres would not last far beyond 1986. In paragraph 5 we go further into this question.

(Note: We have not incorporated an allowance for regional variations in locally dependent industry which might arise from differences in incomes and patterns of expenditure. This is a relatively unexplored field and though we have noted the relevant divergences the implications were not sufficiently conclusive to apply to the calculations up to 1991.)

4. By applying the resultant co-efficients to the projected population at five-year intervals, estimates were obtained of employment in the locally-dependent industries at these dates. Certain of the estimates were adjusted as follows:

i. Employment in construction: where there is a rapid expansion of population, it is clear that the correlation between employment and total size of population which our method assumes is very tenuous; in the case of the construction industry the connection is rather with population increase, with construction employment "leading" slightly. We have therefore derived our figures on construction employment directly from the estimated construction programme, adding an allowance for employment on maintenance work.

ii. Special local factors: in the case of industries whose present "employment co-efficients" are exceptionally high for a place of Ashford's size, because of a special factor that can be expected to persist (as, for example, in the educational field), an upwards adjustment was made for this in the projection of future employment.

The final estimates of employment in the locally-dependent industries are shown in the following table:

Table 12

Employment in "locally-dependant" industries in the Study Area, 1965-91: high population assumptions (000's)

Standard Industrial Classification		1965	1971	1981	1991
III	Food, etc. (part)	*	*	*	1
XV	Paper, Printing, etc. (part)	*	*	*	1
XVII	Construction	2	2	5	7
XVIII	Gas, Electricity, Water	*	*	1	1
XIX	Transport and Communications	2	2	3	5
XX	Distributive trades	3	3	7	17
XXI	Insurance, Banking, etc.	*	1	1	3
XXII XXIII XXIV	Professional and Scientific services Miscellaneous services	5	7	14	27
(MLH 906 only) Local Government		1	1	1	4
	Total	14	17	34	66

*Under 500 employed

5. To give a sounder basis to our estimate of the date at which the new city would be "self-sufficient" in the provision of services we assessed the possible pattern of population growth in the sub-region using data, supplied by Kent County Planning Officer, on the size and distribution of population in 1981. We applied these estimates to a rough gravity model in order to follow through the implications of the growth of a major service centre for the sub-regional shopping structure—this being taken as indicating the hierarchy of service centres. The exercise was by no means a study in depth and it had many shortcomings: it suggested nonetheless that by 1986 the new city would be self-sufficient as a service centre. In view, however, of the uncertainties and the fact that the immigration programme would just have reached the peak rate, it seemed advisable to allow for some continuing lag in the growth of service employment and to assume that the city would not be self-sufficient until 1991. (For the period before 1986, of course, we also assume a lag in the growth of service employment—most marked in the earlier years of planned expansion.)

6. This means that while in 1986 the new city would almost certainly have the largest centre in the sub-region other major centres in East Kent would still be competitive in the range of services offered; the volume of service employment would therefore be less than one would expect in a town of such a size. We would not, however, wish to be too definite on this point, since we are unable to say anything about the extent to which other towns, Maidstone and Canterbury in particular, would be able to cope with the increased turnover we have allocated them in our calculations. Should there be some constraint on the development of service activities in other centres this could appreciably affect both the total and the phasing of the need for jobs in new industry in the city, by accelerating the growth of service employment in the new centre. If there were to be less of a lag in 1986 then we have assumed the peak demand for new industry between 1981-1986 would be reduced. The demand for new industry between 1986 and 1991 would not be correspondingly higher because service employment would be rising beyond the "self-sufficiency" levels as the new city centre began to take on some of the functions of a sub-regional centre.

The growth of industry already established

7. A survey of employers was carried out with the principal aim of discovering the extent to which existing manufacturing firms in the Study Area would expand their demand for labour. It is unlikely that there will be a marked increase in their employment in the foreseeable future and we have estimated that between 1965 and 1991 the net increase in employment from this source will be more than 3,000. Our estimates of future employment in these categories (together with agricultural employment, which we also treat as "externally dependent") are summarised in the following table.

Table 13

Employment in existing "externally dependent" establishments in the Study Area, 1965-91 : high population assumptions (000's)

Standard Industrial Classification		1965	1971	1981	1991
I	Agriculture, etc.	2	2	1	1
II	Mining and Quarrying	*	*	*	*
III	Food, Drink and Tobacco (part)	2	2	2	3
IV	Chemicals	*	1	1	1
V	Metal Manufacturers	*	*	*	*
VI-VIII	Engineering and Vehicles	2	3	3	3
IX	Metal Goods n.e.s.	*	*	*	*
X-XII	Textiles, Leather, Clothing, etc.	—	—	—	—
XIII	Bricks, Pottery, etc.	1	1	1	1
XIV	Timber, etc.	*	1	1	1
XV	Paper, Printing (part)	1	1	1	1
XVI	Other Manufacture	1	1	2	2
XXIV (MLH 901 only)	National Government†	*	*	*	*
	Total	10	11	12	13

*Under 500

†Employees with ordinary insurance cards only.

The Job Gap

8. For the "non-classified" workers at each quinquennial date, we made an allowance based on the estimated national percentage of such workers, adjusted to take account of the relatively high proportion of agricultural employment (and therefore of self-employed farmers) in the Study Area. We were then in a position to calculate the gross job requirements which must be met either by new industry or by net commuting out.‡ On the basis of the assumptions outlined above we estimate a job gap at 1991 of 33,000, on the high population figures. We would emphasise that a high degree of accuracy cannot be hoped for in long-term forecasts of this kind: in so far as several of our assumptions, notably those relating to growth of employment in services, may have been on the conservative side we would suggest that this figure perhaps tends to be slightly pessimistic.

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‡The results, on the high population assumptions, are given in Table 3.

Appendix 5: Cost of Development

1. These costs are related to the accommodation and facilities required for a new population of 195,900—i.e. the population which would require to be accommodated within the Designation Area between 1971 and 1991.

2. The costs, which cover all new construction and land acquisition, are based on those current at May 1967, without any allowance for future increases in cost of labour and materials.

3. Administrative and professional charges are *not* included.

Land use element	*Quantity*	*Unit*	*Unit Cost:*	*Sub total cost:*	*Total cost:*	*Comments*
1 HOUSING AREAS						
a: Net housing areas						
i Lower density (22.5ppa)	46,800	persons	£1,244	£ 60,456,400		See Note [1], page 83
ii Medium density (40ppa)	130,100	persons	£ 897	£116,899,700		
iii Higher density (70ppa)	15,500	persons	£1,309	£ 20,289,500		
	194,200			£197,447,600		
			add 5% contingency	£ 9,872,380		
				£207,318,880		
				say	£207,320,000	
b: Ancillary housing facilities						
i Education				£ 22,232,000		See Note [3], page 85
ii Local industry:						
Industrial floor space	1,500,000	sq. ft	70/-	£ 5,250,000		
estate development	80	acres	£ 3,500	£ 280,000		
iii Open space and local recreational facilities	780	acres	£ 1,500	£ 1,170,000		
iv Churches	40	no.	£40,000	£ 1,600,000		
v Public houses	40	no.	£12,500	£ 500,000		
vi Petrol filling stations	65	no.	£15,000	£ 875,000		
vii Children's, aged persons homes and similar institutions			say	£ 1,000,000		
viii Local shops and similar uses	750	no.	£ 3,000	£ 2,250,000		
ix Libraries	20	no.	£ 7,500	£ 150,000		
x Community & youth clubs	40	no.	£25,000	£ 1,000,000		
xi Health & welfare services			say	£ 750 000		
					£ 37,157,000	
2 OPEN SPACE & RECREATION FACILITIES						
a Playing fields	690	acres	£ 800	£ 552,000		
b Development of parkland and recreational sites	1,200	acres	£ 600	£ 720,000		part only of total parkland & woodland area of 4,100 acres.
c Sports halls in district centres	4	no.	£40,000	£ 160,000		
d Open air swimming pools	2	no.	£50,000	£ 100,000		
e Indoor swimming pools	1	no.		£ 350,000		
f Small buildings associated with outdoor recreation			say	£ 100,000		
g Crematorium	1	no.		£ 100,000		
					£ 2,082,000	
3 INDUSTRIAL ESTATES						
a Industrial floor space	15,000,000	sq. ft.	70/-	£ 52,500,000		
b Estate development	1,100	acres	£ 3,500	£ 3,850,000		
					£ 56,350,000	
4 CENTRES						
a *Sub-regional centre*						
i Shopping						
selling space & storage	2,000,000	sq. ft.	65/-	£ 6,500,000		"shells" only
offices	300,000	sq. ft.	100/-	£ 1,500,000		
amenity, circulation & open space	50	acres total site area		£ 500,000		
ii Offices						
general & administrative	1,500,000	sq. ft.	110/-	£ 8,250,000		
"footloose"	1,000,000	sq. ft.	110/-	£ 5,500,000		
amenity, circulation and open space	30	acres total site area		£ 300,000		
			Carried forward		£302,909,000	

Land use Element	*Quantity*	*Unit*	*Unit cost:*	*Sub-Total cost:*	*Total cost:*	*Comments*
			Brought forward		£302,909,000	
iii Entertainment/Cultural buildings	600,000	sq. ft.	150/-	£ 4,500,000		
amenity, circulation and open space	30	acres total site area		£ 300,000		
iv Road access						
car parking (multilevel)	23,500	spaces	£ 350	£ 6,225,000		
internal roads				£ 7,750,000		
vehicular service areas				£ 500,000		
v Housing	670	dwellings	£4,000	£ 2,680,000		
vi Landscaping and space reserved for future extensions	40	acres	£1,000	£ 40,000		
					£ 46,545,000	
b Secondary Facilities						
i Shopping						
selling space and storage	1,000,000	sq. ft.	65/-	£ 3,250,000		"shells" only
offices	300,000	sq. ft.	100/-	£ 1,500,000		
amenity, circulation and open space	25	acres	total site area	£ 250,000		
ii Road access						
car parking (multilevel)	4,000	spaces	£ 350	£ 1,400,000		
internal roads				£ 750,000		
vehicle service areas				£ 250,000		
iii Housing	150	dwellings	£4,000	£ 600,000		
iv Landscaping & space reserved for future extensions	15	acres	£ 1,000	£ 15,000		
					£ 8,015,000	
5 HOSPITALS						
Hospital buildings	1,500	bed spaces	£ 7,000	—	£ 10,500,000	
6 TRANSPORT						
a Roads & Bridges						
i Dual 3 lane	16	miles	£1,100,000	£ 17,600,000		Motorway standard includes for 21 no grade separated intersections
ii Dual 2 lane	32	miles	£580,000	£ 18,600,000		Major roads with at-grade intersections
iii Single carriageway	58	miles	£280,000	£ 16,200,000	£ 52,400,000	Major and minor roads other than access roads
b Railways						
i New railway station				£ 250,000		Costs exclude any new railway track work
ii Container depot				£ 150,000	£ 400,000	
c Bus services						
i Bus station: central				£ 500,000		
ii Other buildings				£ 250,000	£ 750,000	
7 PUBLIC UTILITY SERVICES						
a Foul sewerage						
i Trunk sewers				£ 587,000		
ii Pumping stations	4	no	£ 20,000	£ 80,000		
iii Rising mains				£ 300,000		
iv Sewage treatment works	2	no	£ 1,650,000	£ 3,300,000	£ 4,267,000	
			Carried forward		£425,786,000	

Land use element	*Quantity*	*Unit*	*Unit cost:*	*Sub-total cost:*	*Total cost.*	*Comments*
				Brought forward	£425,786,000	
b *Surface water sewerage* trunk sewers					£ 740,000	
c *River works*						
i Major river improvements beyond the Designation Area				£ 150,000		
ii Major river improvements within the Designation Area				£ 300,000		
iii Balancing reservoirs				£ 100,000		
					£ 550,000	
d *Water supply* constructional cost of extraction, pumping, treatment plant, storage & distribution					£ 6,000,000	
e *Electricity supply*					£ 24,000,000	
f *Gas supply*					£ 1,250,000	
g *GPO telephone services*					£ 13,500,000	
h *Refuse disposal* incineration plant & associated buildings					£ 725,000	
				Total approximate construction cost:	£472,551,000	
8 LAND ACQUISITION					£ 17,750,000	
			Total of construction and land acquisition costs		£490,301,000	

NOTE 1: The following shows details of the calculation of housing costs per person at lower, medium and higher densities used in the summary.

The meanings of the terms used to describe construction standards are as follows:

"Basic" — the minimum standards required by the Parker Morris Report.
"Medium" — an addition of 15% to the "basic" superstructure cost.
"High" — an addition of 30% to the "basic" superstructure cost.

a. *LOWER DENSITY HOUSING*

Average 22·5 persons (actual) per acre

ACCOMMODATION SCHEDULE

Description of household/family	*Persons per dwelling*	*X*	*Percentage distribution*	*=*	*Persons per 100 dwellings*	*Bedspaces per dwelling*	*Bedspaces per 100 dwellings*
small families	4·0		34·3		137·2	5	171·5
large families	6·0		6·1		36·6	7	42·7
large adult families	5·0		25·2		126·0	8	151·2
large adult households	3·5		30·5		106·5	5	152·5
older small households	2·0		3·9		7·8	3	11·7
			100·0%		414·1		529·6

Ratio of persons : bedspaces 1 : 1·28

BUILDING COSTS PER 1,000 *DWELLINGS*

3 bedspace bungalows. Remainder all 2-storey houses.

All floor areas 10% above Parker Morris

No. of dwellings	*Bedspaces per dwelling*	*Building form*	*Construction standard*	*Cost per dwelling*	
				£	£
10	3	Semi-det	Medium	3,000	30,000
10	3	Semi-det	High	3,300	33,000
10	3	Detached	Medium	3,150	31,500
10	3	Detached	High	3,450	34,500
162	5	Semi-det	Medium	3,700	599,400
162	5	Semi-det	High	4,100	664,200
162	5	Detached	Medium	3,850	623,700
182	5	Detached	High	4,250	688,500
83	6	Semi-det	Medium	4,100	258,300
63	6	Semi-det	High	4,500	283,500
63	6	Detached	Medium	4,260	267,750
63	6	Detached	High	4,700	296,100
15	7	Semi-det	Medium	4,500	67,500
15	7	Semi-det	High	5,000	75,000
15	7	Detached	Medium	4,700	70,500
15	7	Detached	High	5,200	78,000
Estate roads, sewers and layout outside the curtilage of the dwellings.					
1,000 dwellings @ say £600					600,000
Garages integral or detached					
1,500 garages @ £275					412,500
Off-street visitors' car parking					
600 car spaces @ £75					37,500
Approximate building cost per 1,000 *dwellings:*					£5,151,450
		÷4,141 persons			
APPROXIMATE BUILDING COST PER PERSON		(actual)			£1,244

b. *MEDIUM DENSITY HOUSING*
Average 40 persons (actual) per acre
ACCOMMODATION SCHEDULE

Description of household/family	*Persons per dwelling*	*Percentage X distribution =*	*Persons per 100 dwellings*	*Bedspaces per dwelling*	*Bedspaces per 100 dwellings*
one person households	1·0	0·4	0·4	1	0·4
small adult households	2·0	11·7	23·4	2	23·4
small families	4·0	24·9	99·6	5	124·5
large families	6·0	8·0	48·0	7	56·0
large adult families	5·0	17·9	89·5	8	107·4
large adult households	4·0	25·4	101·6	4	101·6
older small households	2·0	11·7	23·4	2	23·4
		100·0%	385·9		438·7

Ratio of persons : bedspaces 1 : 1·13

BUILDING COSTS PER 1,000 *DWELLINGS*
All terraced dwellings to Parker Morris basic construction standards and floor areas.

No. of dwellings	*Bedspaces per dwelling*	*Building form*	*Cost per dwelling*	
			£	£
4	1	3-storey flats	2,150	8,600
117	2	3-storey flats	2,450	286,650
117	2	Bungalows	2,150	251,550
254	4	2-storey houses	2,700	685,800
249	5	2-storey houses	3,000	747,000
179	6	2-storey houses	3,250	581,750
80	7	2-storey houses	3,600	288,000
Estate roads, sewers and layout outside the curtilage of the dwellings. 1,000 dwellings @ £375				375,000
Garages in grouped single storey blocks 1,000 garages @ £200				200,000
Off-street visitors' car parking 500 car spaces @ £75				37,500
Approximate building cost per 1,000 *dwellings:*				3,461,850
		÷ 3,859 persons		
APPROXIMATE BUILDING COST PER PERSON		(actual)		£897

c. *HIGHER DENSITY HOUSING*
Average 70 *persons (actual) per acre*
ACCOMMODATION SCHEDULE

Description of household family	*Persons per dwelling*	*Percentage X distribution =*	*Persons per 100 dwellings*	*Bedspace per dwelling*	*Bedspace per 100 dwellings*
one person households	1·0	12·5	12·5	1	12·5
small adult households	2·0	22·0	44·0	2	44·0
small families	4·0	13·7	54·8	5	68·5
large families	6·0	4·4	26·4	7	30·8
large adult families	5·0	8·8	44·0	6	52·8
large adult households	3·5	16·6	58·1	4	66·4
older small households	2·0	22·0	44·0	2	44·0
		100·0%	283·8		319·0

Ratio of persons : bedspaces 1 : 1·12

BUILDING COSTS PER 1,000 *DWELLINGS*
All to Parker Morris floor areas.

No. of dwellings	Bedspaces per dwelling	Building form	Construction standard	Cost per dwelling	
				£	£
125	1	8-storey flats	Medium	2,900	362,500
220	2	8-storey flats	Medium	3,400	748,000
137	5	4-storey maisonettes	Basic	3,850	500,050
88	6	maisonettes	Basic	4,000	352,000
44	7	maisonettes	Basic	4,400	193,600
220	2	3-storey flats	Basic	2,450	539,000
186	4	3-storey flats	Basic	3,200	531,200
Estate roads, sewers and layout outside the curtilage of the dwellings. 1,000 dwellings @ say £200					200,000
Multi-storey car parking blocks (to serve the 8-storey flats) 345 car spaces @ £350					120,750
Garages in grouped single storey blocks (to serve the remainder of the dwellings) 655 garages @ £200					131,000
Off-street visitors' car parking 500 car spaces @ £75					37,500
Approximate building cost per 1,000 *dwellings:*					£3,715,600
		÷2,838 persons			
APPROXIMATE BUILDING COST PER PERSON		(actual)			£1,309

NOTE 2 : The following shows details of the calculations of education costs used in the summary.

1 *New Schools*

Type of school	No. of pupils (capacity)	No. of cost places	Net cost per cost place	
			£	£
Primary	34,200	34,200	206	7,045,200
Secondary	24,900	28,000	387	10,276,000
Special	600	600	380	228,000
				17,549,200·
			Additional costs 12½%	2,193,650
				19,742,850

2 *New Playing fields*

	acres	
For primary schools	183	
For secondary schools	309	
For special schools	6	
	498 acres at £800	398,400

3 *Extra costs for comprehensive system*

The above figures are based on the present system of primary and secondary education. In the event of a comprehensive system being adopted, the building provision above is considered adequate but there would be need for a further 100 acres of playing fields at £800 per acre — 80,000

Add for contingencies 5%	1,011,060
4 *Further Education buildings*	say 1,000,000
TOTAL APPROXIMATE COST OF EDUCATION	22,232,310
	say £22,232,000

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Ashford Study

Consultants' proposals for designation

A report to the Ministar of Housing and Local Government
by Colin Buchanan and Partners
in association with
Economic Consultants Limited
John Taylor and Sons
Cyril Sweatt and Partners
Petar Youngman

15 JA
19

London Her Majesty's Stetionery Office 1967

Preface

We were commissioned by the Minister of Housing and Local Government on the 16th November 1966 to undertake a study of the Ashford area as the possible site of a major development. The project we were asked to consider would involve a planned intake of 150,000 people over the next 25 years as a contribution to the relief of London's housing problems. We were to recommend to the Minister an appropriate area for such a development for designation under the New Towns Act 1965.

The work has been carried through with the help of expert advice from Economic Consultants Limited on population and employment; from John Taylor and Sons on water supply, drainage and hydrology; from Cyril Sweett and Partners on costing; and from Peter Youngman on landscape. We are most grateful for their help.

We are indebted to the County Planning Officer for a great deal of advice and information readily given in addition to his special study of the regional impact of major expansion at Ashford. During the course of the study we have also had discussions with, and information from, a great number of people and agencies, including Government Departments, local authorities, statutory undertakings and local organisations. They are too numerous to mention individually, but without their assistance we could not have progressed. We take this opportunity to acknowledge their contribution with much gratitude.

This report presents the results of our Study. We may briefly summarise the salient details regarding the Designation Area as follows. We consider that the Area should be located immediately to the south and south west of the existing town of Ashford. The Designation Area we suggest is illustrated on Foldout 10; we consider that it should include the bulk of Ashford Urban District but we show alternative boundaries on the north—the choice between them would rest on administrative rather than technical grounds. One alternative follows the northern boundary of the Urban District; the other the line of A20 where it passes through Ashford. The population of the former (larger) area could reach somewhat more than 240,000 people by 1991—a population for a new city rather than a new town—and we estimate that 25,647 acres would require to be designated in order to cater for the needs of these people.

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